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THE MAGAZINE FOR FLEET OPERATORS

MAY 8 1941

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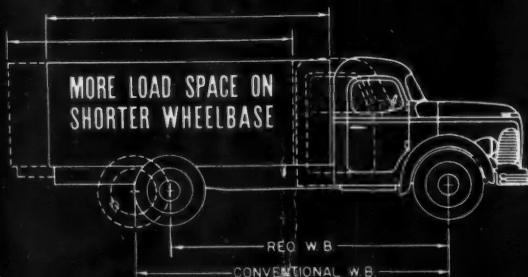
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Acceptance under the Act of June 5, 1934, authorized December 18, 1934.

Published monthly

Member C.C.A.

Vol. LXI

Philadelphia, May, 1941

No. 3

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SUBSCRIPTION RATES: United States and United States Possessions and all Latin-American countries—\$2.00 per year. Canada and Foreign—\$4.00 per year. Single copies—25 cents.

Owned and Published by
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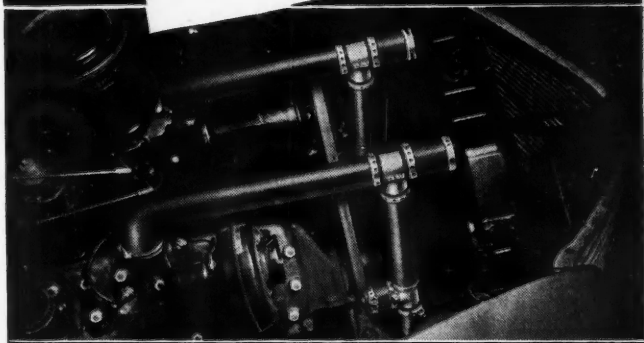
COMMERCIAL CAR JOURNAL, Vol. LXI, No. 3. Published monthly by Chilton Co., N. W. Cor. Chestnut & 56th Sts., Philadelphia, Pa. Subscription price: United States and Possessions, Mexico and Latin American Countries, \$2.00 per year; Canada and Foreign, \$4.00 per year. Single copies, 25c, except April Issue, \$1.00. Acceptance under the Act of June 5, 1934, authorized December 18, 1934.

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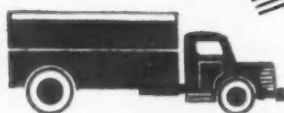
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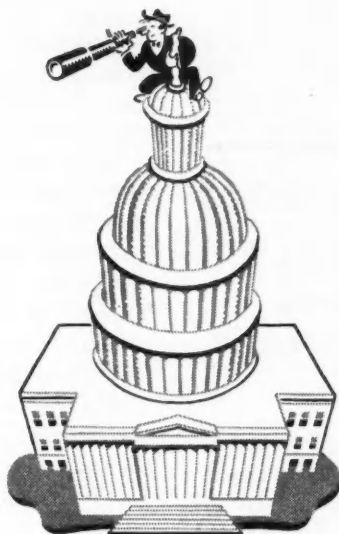
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THE MAGAZINE FOR FLEET OPERATORS

Vol. LXI

MAY, 1941

No. 3



LEGISLATIVE LOOKOUT

**Georgia, Maryland, Vermont and
Washington are latest to report
upward revisions of weight laws**

FOUR more states have joined the growing list of those which have modernized their gross vehicle weight codes and thus freed truck transportation from major bottlenecks. Last month we reported on the changes in Indiana, North Dakota, Tennessee and Texas. The new ones are Georgia (59,500 lb.), Maryland (71,250 lb.), Vermont (600 lb. per in. of tire width), and Washington (75,000 lb.). Details of these new measures, together with other legislation made law by Governors' signatures are given in the section just below.

Meanwhile be it recorded that 22

legislatures of the original 42* which started sessions this year have adjourned, though many have left measures which are still pending executive signatures. Florida convened for the first time on April 8.

These Have Been Approved: GEORGIA

S.B. 66 repeals provisions limiting weight according to pay-load. (For-hire combi-
(TURN TO PAGE 88, PLEASE)

* Adjourned as of April 21: Arizona, Arkansas, Colorado, Georgia, Idaho, Indiana, Iowa, Kansas, Maryland, Montana, Nevada, New York, North Carolina, North Dakota, Oregon, South Dakota, Tennessee, Utah, Vermont, Washington, West Virginia, Wyoming.
Still in session as of April 21: California, Connecticut, Delaware, Florida, Illinois, Maine, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, New Jersey, New Mexico, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, Texas, Wisconsin.

FREE BOOKS



... a special selection made by the editors ... to get your copy, just check the letter on the post card between pages 114 and 115 which corresponds with the item you desire and mail to Commercial Car Journal, Philadelphia.

Blackhawk Wrench Catalog

For the latest in wrenches, better get hold of the new 40-page wrench catalog just issued by Blackhawk Mfg. Co. Of special interest are new additions to the Nugget socket wrench line which has a 7/16 in. drive and eliminates the need for separate sets with 3/8 and 1/2 in. drives. A 50-piece Nugget set, says Blackhawk, makes over 23,000 combinations. Check "A" on the post card.

Trailer Details

Forty pages crammed full of really detailed trailer information, illustrated in full color, sizes up the new Fruehauf trailer catalog just released. A must item for every fleet that owns or contemplates trailer equipment. Check "B" on the post card.

Hansen Hardware

If it's hardware you need, you won't go wrong looking over the new truck hardware catalog just issued by A. L. Hansen Mfg. Co. After describing a whole line of new and established equipment, the catalog sports a special section on Stapling Machines of particular interest to fleets who do their own upholstering and insulating. Check "C" on the post card.

Snap-On Packs 'Em In

It takes more words than this column can afford to even begin to describe the literally thousands of tools listed in a new 96-page catalog from Snap-On Tools Corp. Suffice it to say that you would do well to look it over before you buy. Check "D" on the post card.

Valvoline Explains New Oil

The development of a brand new heavy-
(TURN TO PAGE 48, PLEASE)



EDITORIAL COMMENT BY GEORGE T. HOOK, EDITOR

1. Effect of the 20% reduction policy on trucks.
2. The proposal to pool trucks for emergencies.
3. Kentucky supplants Texas as the "Lone Star State."

1. It is too early to anticipate the effects on the truck industry of the 20 per cent reduction in production which the automotive industry has agreed to effect at the request of the Office of Production Management. Quite a number of practical matters need to be considered and acted upon before an analysis of effects is attempted.

All we know at the moment is that, based on total production for the model year beginning Aug. 1, 1940, and ending July 31, 1941, the government expects automotive manufacturers to cut car, truck and bus production 20 per cent during the next model year. We know, too, that the plan is a voluntary one; there are no penalties for non-compliance, and every manufacturer is, so to speak, on his honor. We know that the purpose

of the reduction, as stated by O.P.M. Chief Knudsen, is "to make available more manpower, materials, facilities and management for the defense load now being made ready."

We do not know the truck production figure on which the reduction will be based.

We do not know how many trucks the industry will be called upon to produce to meet Lease-Lend plans.

We do not know how many trucks the Army will require during the next model year.

We do not know whether the term "20 per cent reduction" is meant to apply to the total number of trucks or to the amount of materials consumed, or to both. We do know that because trucks are produced in such a variety of capacities, we can use more material to make 20 per cent fewer trucks, or make more trucks with 20

per cent fewer pounds of materials.

We do not know if the manufacturers of both cars and trucks will be given the privilege of effecting a 20 per cent saving in materials in any manner that they choose. We do know that if they had this privilege they might decide that in the defense program the carriage of commodities is relatively more important than the carriage of persons, and so keep up truck production at the expense of car production.

We do not know what portion of the model-year truck production will find its way into the export market, nor how many of these exported trucks will be used in military operations. We do know that civilian domestic market demands should be met before foreign civilian needs.

We do not know if quota adjustments will be made in the case of manufacturers whose production was cut by strikes. We do know that adjustments will affect total production.

In short, we do not know a lot of things and won't know the answers until O.P.M. gets around to translating policy into practice. Until we get the answers we will not speculate on the probable effects of the policy on civilian operators of motor trucks. We are after the answers. (See p.36.)

2. If world developments teach us anything it is that we should prepare to cope with the worst. Only by planning how to handle "the worst" when it happens can we moderate its effects. Not to expect the worst and to believe that it can be coped with effectively after it happens, is to court disaster.

CCJ QUIZ



By ROBERT F. BAHL

Do you match your wits with these quiz questions each month? If you haven't tried answering them before, start now. You'll find it's fun . . . because all the questions are about trucks and truckmen and the truck industry—right in your own backyard. Give yourself a score of 10 for each question you answer correctly and a goose-egg for the others. One hundred is per-

fect; 80 to 90 is awfully good; 50 to 80 is just good; less than 50 is just good and awful.

(Correct Answer on Page 119)

1

Just about all the automotive factories are working for Uncle Sam these days. Can you name the one that has built a huge tank arsenal and is turning out 1000 25-ton tanks for National Defense?

- a. Chrysler Corp. b. Ford Motor Co.
c. General Motors. d. International Harvester.

2

The forecast for new trucks and automobiles is that lacquered and enameled parts will replace most chrome-plated parts. The reason—

- a. The Defense Program has created a

scarcity of chromium.

- b. There is a shortage of magnesium, an element used in chrome-plating.
c. There is a shortage of skilled workmen in the chrome-plating industry.
d. Chrome-plating has not proved durable for exposed surfaces.

3

Which of these men, famous in automotive history, mysteriously disappeared in 1913, at the very height of his career?

- a. B. F. Goodyear. b. Rudolph Diesel.
c. Wm. C. Durant. d. Horace Dodge.

4

You can pass by to the next question after you tell us what a "by-pass" is.

- a. It's a free ticket over a toll bridge.
b. It's a road that deflects traffic around

On another page of this issue, in an article entitled "Pooling Trucks for Defense," the lessons taught by England's experience are ably set forth by Frederick C. Horner, who was a member of the U. S. Civil Defense Mission to England with an assignment to study transportation and communications.

Mr. Horner spent 27 days studying transportation conditions in England and the substance of his message is that what happened in England need not and must not happen here.

The pooling to which Mr. Horner directs attention is pooling for emergency purposes. As he conceives it, such pools would be set up in areas which, advance study would determine, would be the most likely objectives of an enemy. The pools would be made up of reserve vehicles made available voluntarily by all types of operators. The owners of such vehicles would be compensated for their use.

As we interpret his idea the pools, together with administrative details, would exist only on paper until conditions indicated that they take a material form. But to put the pools on paper requires planning, and it is the planning that Mr. Horner thinks should be begun without delay. Planning, organization and administration, Mr. Horner rightly believes, should be done by those who are engaged in the business of truck transportation.

The vehicle census, of which Mr. Horner speaks, is the hub around which effective planning by the truck industry must revolve. If the industry undertakes to follow through on Mr. Horner's suggestion, its first

recommendation should be — and doubtless would be—the taking of a census to determine what is the nation's motor transport inventory and what types of vehicles would be available out of reserves for pooling purposes, and what periods of the year they would be available.

The task proposed is not a light one, and will be considered particularly burdensome coming at a time when energies are being expended in meeting the demands of the defense program. But, as Mr. Horner declares:

"Unless we make definite plans now to take care of emergencies efficiently, we will certainly experience commandeering of vehicles by local, state and federal authorities which will disrupt normal road transport services, and prove far more costly to the industry and the nation than the remedy I suggest."

3. ABOLITION by the State of Texas of its ridiculous 7000 lb. load limit and adoption of a formula that permits a maximum gross weight of 38,000 lb., throws into sharper relief than ever what was the No. 2 black spot—and is now No. 1—in the nation's highway transportation system. That black spot is the State of Kentucky, famous for its fast horses and beautiful women, and now infamous for its 18,000-lb. gross weight law. The law represents a bottleneck of the first magnitude, a national disgrace.

Who is to blame for that disgrace? The railroads and their short-sighted minions, the same combination that stained the legislative history of Texas. And the same reasons are advanced to justify Kentucky's un-

fair law that were put forth in Texas: the roads aren't strong enough, the bridges are too weak, highway safety demands it.

But the people of Texas finally recognized those claims as sheer, monstrous, selfish railroad propaganda and on the same roads and the same bridges the railroads said couldn't stand more than a 7,000 lb. payload (unless the load was on its way to or from a railroad, in which case the roads and bridges could stand 14,000 lb.), the people authorized a 38,000 lb. gross weight.

The question now is when will the people of Kentucky realize that they, too, were misled, that they are dupes of the railroads? When will they throw off the dictatorship of selfish interests that do not have the welfare of Kentucky at heart, and that would sabotage the national welfare tomorrow if it would assure elimination of truck competition?

They should throw it off not later than the next session of the legislature, which convenes Jan. 6, 1942. The people of Kentucky can be certain that the railroads will not bow to them without a struggle. It's worth millions to the railroads to maintain Kentucky as an interstate barrier, and to preserve the 18,000 lb. law they will doubtless spend 10 times \$18,000, and be prepared to spend whatever is the price of the corruptibles. It's their last stand on ridiculously low weight.

The industry can take heart from the current trend among states to liberalize their size and weight limits. Civic vision is improving and Kentuckians may be counted on to spot the fifth columnist in their midst.

- a city instead of through it.
- It's a ramp that leads to or from the main highway in a "cloverleaf" intersection.

5

Can you pick out the Methuselah among your tires? With an average driver and under average driving conditions, which tire on your truck should outlast all others?

- Right front.
- Left front.
- Right rear.
- Left rear.

6

Can you understand the lingo of the auto factories. If you can't, you'll have to guess what Joe, who works down at the plant, means when he refers to Mike as a "blue goose." A blue goose is . . .

- A foreman who does no actual labor.

- The newest employe in a plant.
- A man who makes special deliveries to assembly line when stocks run low.
- A body finish sprayer.

7

Plans have already been made for a new super-highway linking two of America's largest cities. Can you name these cities?

- New York and Chicago.
- Pittsburgh and Cleveland.
- Boston and Washington.
- Cincinnati and St. Louis.

8

A young man to be heard from very much in the near future is Robert A. Boyer. Already he is famous for having—

- Developed in the Ford laboratories an auto body of plastic.

- Invented a new catalytic cracking process for crude oil.
- Starred in a motion picture, entitled "The Horseless Carriage."

9

The salt spray test on a truck finish determines several things, but the chief thing it points out about a finish is—

- The protection it offers against rust.
- Its resistance to fading.
- Its resistance to climatic change.

10

If you wished to regiment the greatest number of trucks you would be most successful if you took all those belonging to—

- Common carriers.
- Farmers.
- Public utilities.
- Construction companies.



IF you are one of those analytical people who must know what synthetic enamel is made of before we go on discussing it, we can dispose of your curiosity in a hurry. There are several types of synthetic enamels but the one that has become "standard" with truck fleet owners is composed of phthalic anhydride (which is a hard way of saying mothballs) combined with glycerine and soy bean, linseed or chinawood oil or some combination of these vegetable oils. After chemically combining these ingredients, there are added volatile thinners made from coal tar solvents or petroleum solvents or other synthetic thinners which originate in a chemical laboratory. With this concoction all that is left to do is add the many pigments which give the paint color. Some of the pigments are mineral and some are of obscure chemical origin that only a chemist can explain. Simple, isn't it?

Involved though the manufacture of synthetic enamel may be, it is more economical to buy, easier to work with and lasts longer than any other type of refinishing material. These considerations have placed it so far ahead of other finishes that it would be hard to find a truck fleet using any other type of material to make life brighter in the automotive kingdom.

Thus briefly, we have outlined a large order for synthetic enamel in sweeping statements. Because of the general nature of these statements, we might be suspected of attempting to make a point without explaining or proving our theme. So let's have a go at the advantage of synthetic enamel detail and see if we agree that the claims are justified.

First, there is the matter of price. Since lacquer is the only reasonable alternative, a comparison of these two types of paint would be in order. Taking the prices from a typical manufacturer's catalog we find that a gallon of lacquer (in 5 gal. lots) sells for \$5, while a gallon of synthetic enamel (in the same quantity) costs from \$4.40 to \$4.65, leaving a differential of \$0.35 to \$0.60 per gal. in favor of the synthetic.

But this is only the beginning. To apply synthetic enamel it is necessary to mix 5 gal. of paint with 1 gal. of thinner. This thinner costs about \$1.15 per gal. The result is 6 gal.

of synthetic mixture which costs from \$23.15 to \$24.40. When lacquer is used it has to be cut with about two parts of thinner to one part of paint. Since the thinner costs about \$1.00 per gal., 5 gal. of lacquer when ready to spray amounts to 5 gal. of lacquer at \$5.00 per gal. and 10 gal. of thinner at \$1.00 per gal., or a total of \$35.00.

Technically the thinner is necessary in both cases to get the paint spread on the surface in acceptable manner. Once the mixture is on the surface the thinner starts to evaporate into the air and it serves no further

Synthetic enamels are here to stay. While chemists work for faster drying and better spot repairs, fleetmen can profit by taking proper care of finishes

by HENRY JENNINGS

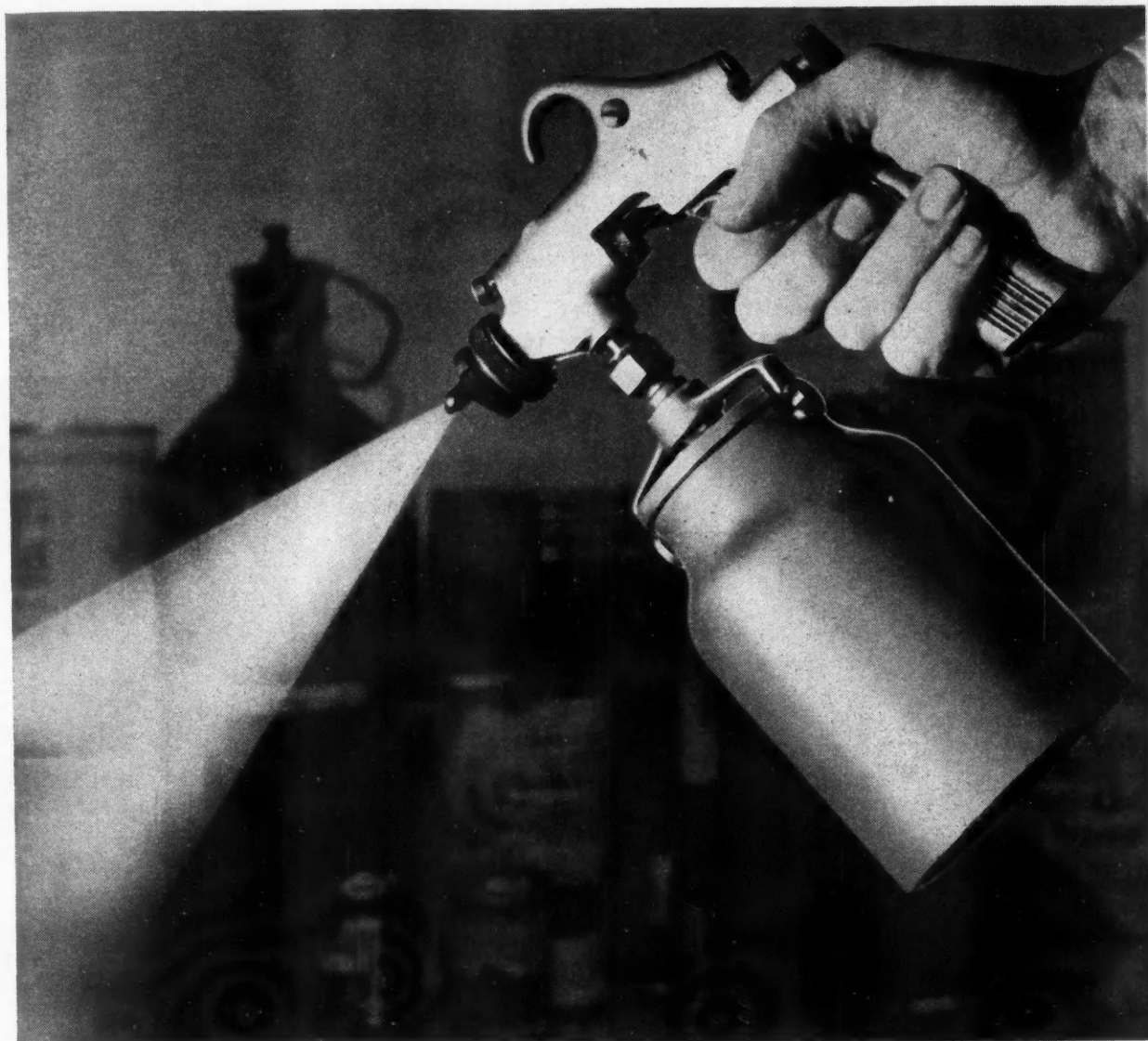
Technical Editor, Commercial Car Journal



PRACTICAL

useful purpose. The only measure of the ability of a paint to cover and protect a surface is the amount of solid material that sticks to the surface. Since the same quantity of paint (5 gal.) is used in each case, about the same amount of solid material is present on the surface despite the wide difference in the amounts of mixture of paint and thinner.

Since there is a greater quantity of fluid to be sprayed when lacquer is used there is more work to painting with lacquer than with synthetic enamel. In addition, lacquer looks dull and shabby unless it is rubbed.



POINTS ON PAINT

This part of the job takes more labor by a good deal than does the actual spraying. While it is true synthetic enamel can be rubbed with good results, its high initial gloss makes such procedure unnecessary. Even without the rubbing, the synthetic enamel is comparable in appearance with lacquer that has been rubbed.

Opinions on the durability of synthetic enamel as compared to lacquer run from "pretty nearly the same" to "far superior." Even the experts who feel that they are about the same admit that synthetic enamel is more suitable for more surfaces.

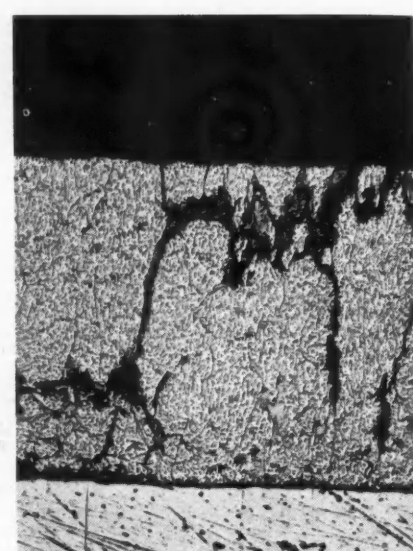
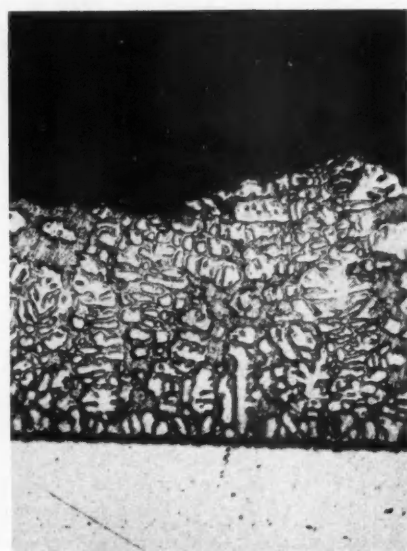
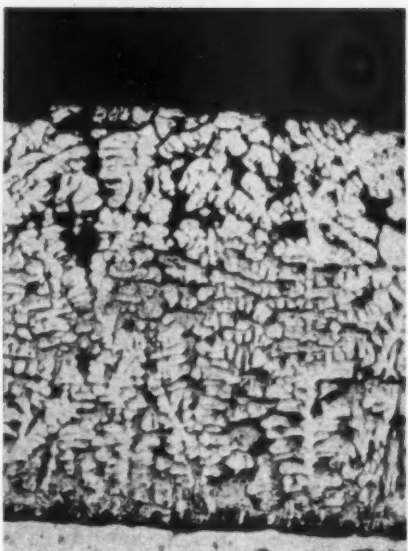
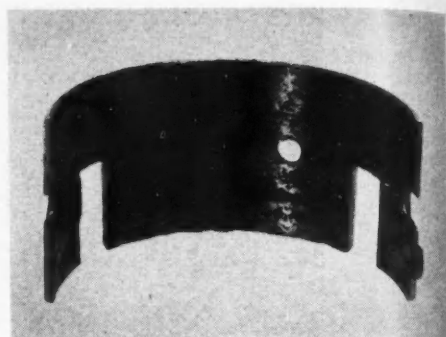
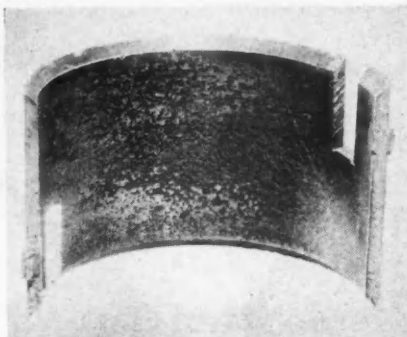
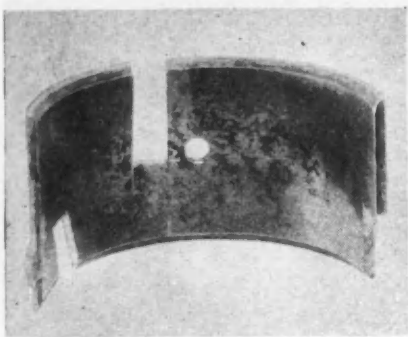
Turn this around a little and it means that lacquer does not last so well on some surfaces. Since there are about 11 surfaces that the fleet painter may encounter, when he throws them all into one opinion he is bound to come up with the fact that synthetic enamel lasts longer in truck fleet use.

While on the subject of durability, it might be well to devote a little thought to the subject of baking. There seems to be some confusion on this point. A number of fleet operators have either ventured too far in their own speculation or have been led to believe that baking makes syn-

thetic enamel last longer. Proof to substantiate this belief is not available. The primary reason for baking enamel, we are told, is to speed up the drying and hence the whole process of painting.

White is the least durable of all paints. Black is the most durable and there is quite some difference between the two. Dark colors with the exception of maroon approach the black in durability and as the color range fades off toward the white so does the lasting power of the paint. White may be as much as 50 per

(TURN TO PAGE 72, PLEASE)



The photographic evidence of various types of copper-lead bearing failures shown above was presented at the Transit Assoc. Forum by J. C. Geniesse of Atlantic Refining Co. In each case the lower photo is an 80-power mag-

nification of the small segments cut from the bearing halves above. At far left is a coarse-structure bearing from a diesel engine run at excessively high temperature. All the lead has been removed and further use would have

compressed the porous copper layer. In the next example, both copper and lead have been removed from surface and a black layer of copper-sulfide deposited in their place. The 3rd example shows fatigue failure in a fine-

EXPERTS TANGLE ON GAS



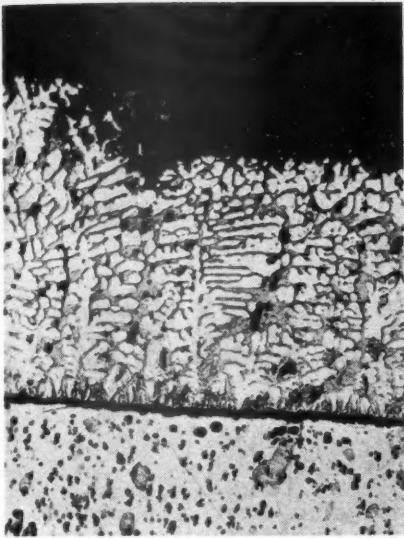
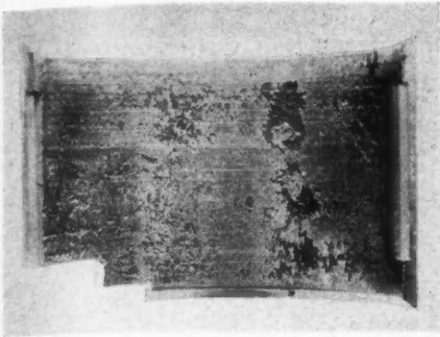
MAYBE you haven't looked at it this way—but crankcase lubricants are really as much a part of an engine as is a con rod or a bearing or a crankshaft. At least that's how it looks to H. C. Mougey, director, General Motors Research Laboratories. Pursuing the same thought, independently, C. J. Livingstone of Gulf Research Corp., puts it even stronger. His version is that the engineers now

have placed lubes on the list of the over-stressed parts of high output engines. Not only that—the fact is that lubes have assumed the role of a coolant for the bearings and pistons along with the job of lubricating.

Operators—vehicle manufacturers—refiners, took their hair down in what turned out to be a frank and to-the-point discussion of gasolines and crankcase lubricants in heavy-duty vehicle operation, at the Na-

tional Forum on bus fuels and lubricants sponsored by the American Transit Association in Detroit.

With capable representatives of all sides of the story on hand, it was possible to piece together the various shades of opinion as to the advances made by the refiners, the catalog of troubles experienced by fleetmen, and an excellent demonstration of how some, if not all, of the current troubles have been licked.



structure bearing from a truck engine due to excessive speed or temperature or to poor structure. Last example shows selective loss of lead and copper corrosion of a coarse-structure bearing due to improper crankcase ventilation.

parently did not exist before, at least not to an appreciable extent. It has been intimated by some, he said, that the new pack of troubles are the result of getting more work out of the equipment, suggesting that the root of the evil may be found in increased compression ratios, higher speeds, faster schedules, etc. He rejects this theory most emphatically, although countering with the statement that both operators and manufacturers must be ready to accept changes and to initiate such practices as will help to meet these conditions.

Picturing a composite bus of today (and that may well apply to motor trucks) E. S. Pardoe, automotive engineer, Capital Transit Co., Washington, D. C., noted that the material improvement in gasoline volatility, octane rating, vapor pressure, and price trend over a 10-year period, has produced a small increase in passenger capacity, a 35 per cent increase in maximum brake horsepower, a 27 per cent increase in compression ratio, knocked off some 1000 pounds of weight, and effected more than 50 per cent improvement in miles per gallon.

But most of the 10-year improve-

ment has come in the past two years, according to Mr. Pardoe, and the increases in compression ratio should have advanced faster in the engines supplied to operators. Since heavy-duty vehicles have a much longer useful life span than do passenger cars, the older vehicles are penalized as improved gasolines come into the picture. Part of the answer, Mr. Pardoe admits, lies in the practice of using the lower grades of gasoline but even so, he feels that better education of the operators by the manufacturers would have helped materially. This situation has been taken in hand in recent years through the cooperative activities of the association and much of the improved attitude is credited to the efforts of Errol J. Gay, co-chairman of this Forum. One solution suggested by Mr. Pardoe, is that of making available higher compression heads for older engines, at reasonable cost.

Vapor lock still is a major problem in bus operation and studies conducted by a sub-committee of the Bus Division of the ATA resulted in a recommendation that the manufacturers should so arrange the fuel han-

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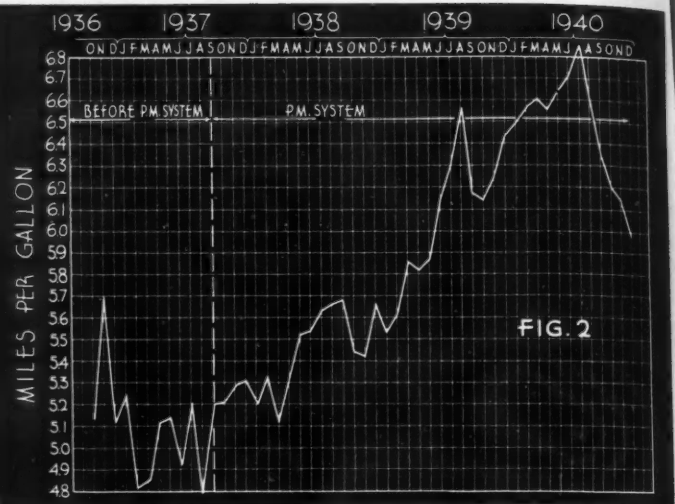
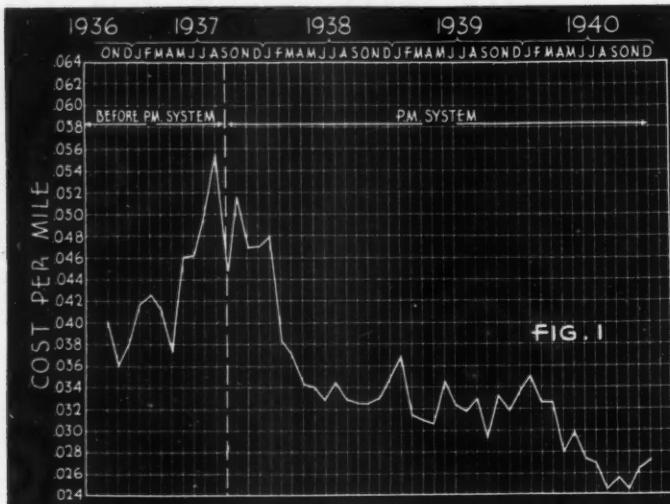
AND OIL

Granting the marvelous advances by the petroleum industry in making available improved fuels, and improved lubricants, and noting the profound changes effected in engine design, both operators and manufacturers laid stress on some new problems that have entered the operating picture. According to C. O. Guernsey, of the J. G. Brill Co., these changes have introduced new problems of operation and maintenance which ap-

Vehicle builders, operators and refiners discuss high-output engine failures and each group gives others benefit of its viewpoint

by JOSEPH GESCHELIN

Detroit Technical Editor, Commercial Car Journal

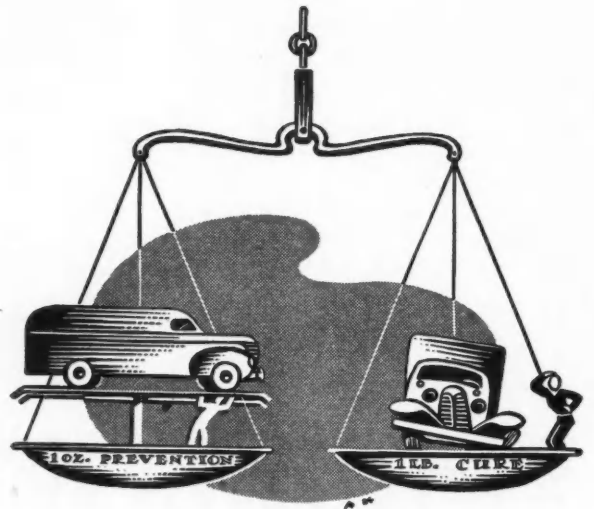


PROOF THAT P.M. PAYS

Details of the preventive maintenance set-up of Southern California Freight Lines and documentary evidence that the plan pays dividends

by R. C. BLOOD

Cost Accountant, Southern California Freight Lines, Los Angeles



R. C. Blood

Southern California Freight Lines fleet covers an average of about 300,000 powered miles, 250,000 trailer and semi-trailer miles a month, or a grand total of 550,000 miles. At present we operate 186 pieces of powered equipment, composed of trucks and tractors, ranging from 1½ to 10 ton, both gasoline and diesel powered, and 135 trailers and semi-trailers consisting of single and

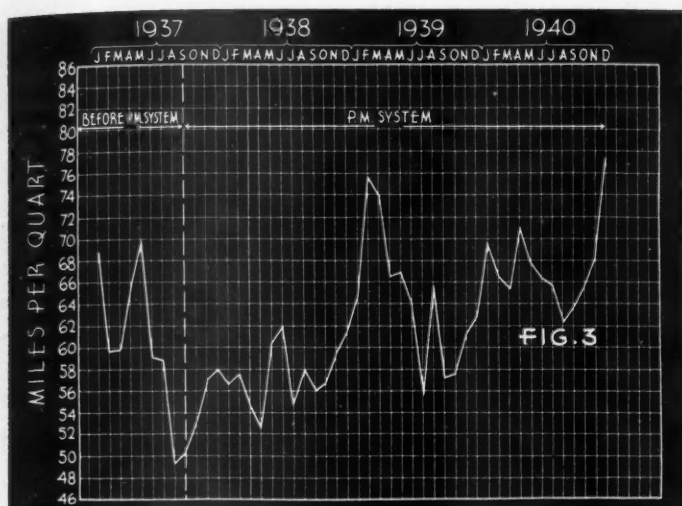
double axle semi-trailers and 8 to 12-wheel trailers, over the greater portion of Southern California.

Late in August, 1937 we decided to revise our maintenance system. At that time we were operating under the old idea of unit repair after failure.

We made a study of various cost systems and decided to use a modified "Scheduled Preventive Maintenance System" based on the G.M.C. plan.

A month was spent in drafting forms and instructing employees as to their use. We started operating under the new plan in October, 1937.

It was first necessary to completely overhaul a great many units and as a result the "Total Maintenance Cost Per Mile" (less tire expense and fixed charges) remained high from October, 1937 to January, 1938, inclusive. The result of our overhauls became apparent in February, 1938 when the costs began a rapid decline. (See Fig. 1.) Gasoline mileage increased from 5.21 m.p.g. for the fleet in October, 1937 to 5.31 in December, 1937; then fluctuated until March, 1938 after which a steady improvement was made resulting in an all-time high of 6.85 m.p.g. in July,



Left: Easiest to understand of all cost accounting systems is the simple graph. So Mr. Blood set up the charts shown in Figs. 1, 2 & 3 to show "Cost per Mile," "Miles per Gallon of Gas" and "Miles per Quart of Oil" covering the periods just before and after the preventive maintenance plan was instituted. Overall results are at once apparent and sudden variations are explained in the article. The actual size of these charts is 10 x 15 in.

Below: The company's shop is not only well equipped but also takes full advantage of California sunshine



1940. (See Fig. 2.) A drop in fuel performance may be noticed each year for approximately two months starting usually in July or August. As far as we have been able to ascertain this is caused by the change from summer to winter grade gasoline and also a change in the operating picture that occurs each year at that time. The continued drop in 1940 was caused by the taking over of a high-mileage, heavy-load type of service. The equipment taken over was in a run down condition and resulted in the continued down trend. When this fleet is brought up to standard

we believe this condition will be corrected.

Oil Mileage fluctuated more violently than the Fuel Curve but a general improvement was accomplished. (See Fig. 3.)

It might appear that our gains were small when comparing gasoline mileage, cost per mile of labor and material, etc., but when these small gains are added together and applied to the total mileage a very different picture is seen. For the year ending Sept. 30, 1937, under the old system we averaged .04283 cents per mile "Total Maintenance Cost" (less

tire and fixed expenses) while for the year ending Sept. 30, 1938, under the new system the average was .03938 cents per mile, or a saving of .00345 cents per mile, amounting to \$14,382.10 saving in the latter period. This saving was effected in the face of a 26 per cent shop wage increase for the entire 1937-38 period and not considering increased material costs or the large number of complete overhauls completed in this period. It might be added that the average figure for 1939 was .03435 and for 1940, .02970 cents per mile.

(TURN TO NEXT PAGE, PLEASE)

PROOF THAT P.M. PAYS



(CONTINUED FROM PAGE 25)

Road failures have dropped to 25 per cent of what they formerly were under the old system, notwithstanding an increase in mileage of 30 per cent. This has enabled the operating department to more closely schedule truck movements with resulting improvement in service given customers. It also lessened shop pressure.

At the outset we recognized that statistics were costly to obtain and designed our system so that all data compiled could be put to practical use. Any good maintenance system must bring out wasteful practices and establish a check to see that something has been done promptly to correct the situation.

As experience is gained new uses for information are invariably found, forms and procedures are changed to take advantage of data obtained. Any system must be a living plan to be a success. If it is allowed to decline into a ritual it will turn to a liability.

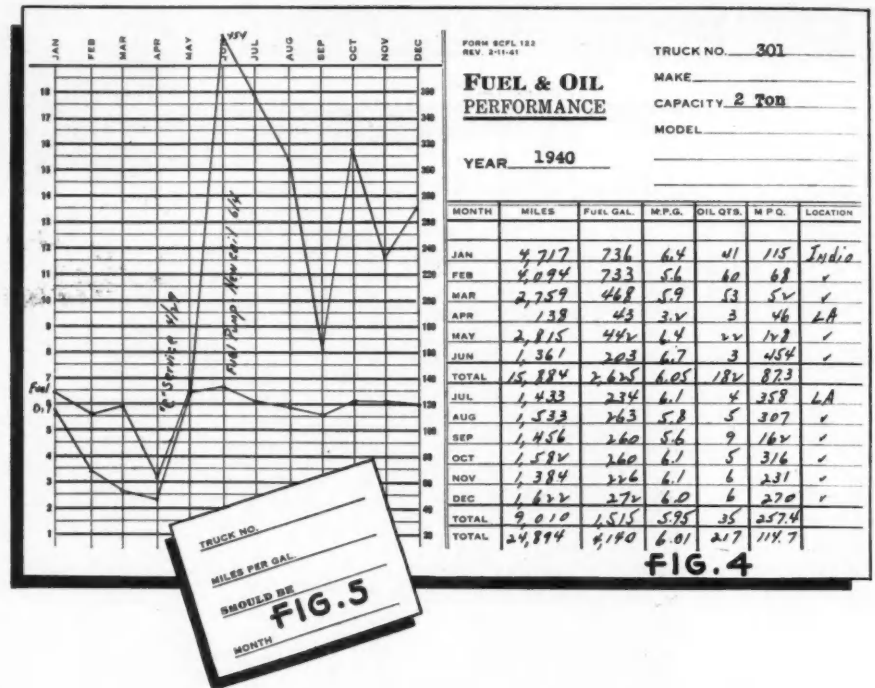
I will divide our system into the following five classifications so that it can be better explained.

1. Mileage
2. Fuel and Oil
3. Labor
4. Material
5. Preventive Maintenance statistics and their use

Mileage

Mileage is the backbone of any motor transport cost system and correct mileage reporting is imperative. Any fluctuation in mileage will cause corresponding oscillations in practically all basic figures.

Mileage figures are obtained from speedometer readings, which are listed daily in the "Mileage Book." Start and finish speedometer readings are checked against previous trip and also against route to detect er-



Above: A card, like the one reproduced in Fig. 4, for each vehicle is kept on the Superintendent of Maintenance's desk. It supplements the complete record and provides a quick reference on vehicle performance. Actual size: 5 x 8 in. The 1½ x 2 in. sticker, Fig. 5, is placed on dash as an incentive to driver.

Right: The Preventive Maintenance History Sheet forms the backbone of the whole accounting system. In semi-graphic form, the front side tells date and mileage at which various types of service are performed. Normally only the coded entries in first line are used, but they are decoded here in second row. Details of the standard service routine are given in text. Reverse side gives details of operation and parts installed. Actual size of this sheet: 11 x 17 in.

roneous reporting and faulty instruments. Trailer mileage is obtained by truck speedometer but driver must also report where trailer was picked up and where dropped. This information is posted in "Mileage Book" and serves as a check as the trailer must be picked up from point where it was dropped on previous trip. If such is not the case missed miles must be accounted for. We are now equipping each of our trailers

and semi-trailers with hubodometers.

"Bad order" speedometers are repaired promptly and driver estimates miles traveled until repair is made.

Mileage stubs are printed on detachable portion of driver's "Truck Order." Drivers are paid from this form and we insist that it be correctly filled out before it is accepted by the payroll clerk who detaches mileage stub and forwards it to cost department.

CAN YOU USE FIVE DOLLARS?



Commercial Car Journal pays \$5 for each shop hint accepted for publication on these pages. Simply send in the idea which you believe to be original. Don't worry about style. Acceptance is based on the idea. CCJ will edit it for publication

SHOP HINTS

FROM FLEET SHOPS

1. Jack Platform

By Roger J. Liberty
Worcester, Mass.

The diagram and photograph No. 1 show a little block of iron $1\frac{1}{4}$ in. high, $\frac{3}{4}$ in. wide and $2\frac{1}{2}$ in. long hinged to the top of a jack. This little block is very handy when jacking any truck having the differential off center. It makes it possible to lift both wheels clear of the floor on this type of truck. The diagram shows that it can be moved out of the way when it is necessary to jack the center differential.

2. Door Lock Repair

By Charles Razim
U. S. Brewing Co., Chicago, Ill

We had some trouble breaking springs in the door locks of our cabs. We corrected this trouble by welding a $\frac{3}{16}$ in. cotter pin to the housing (5 in illustration No. 2) and another cotter pin to pullrod (4) at (2). Then we cut a piece of accelerator spring

(3) to fit, making an eye at each end and hooked it to the cotterpins. This has eliminated all of our trouble.

3. Horn Wire Repair

By A. E. Peterson
Gulf Refining Co., Louisville, Ky.

The horn wire on most trucks comes out of the steering mast jacket through a little hole at the base of the steering column. After a while this wire breaks off and to replace it most mechanics tear down the whole column so as to install a new wire and plug. An easy way to do it is to drill a $\frac{1}{2}$ in. hole about 4 in. up the mast jacket and fish the wire through this hole. The wire can be soldered to the same little plug connection and the whole job can be done in about 30 min.

4. Waste Can

By Melvin Sauer
Dearborn, Mich

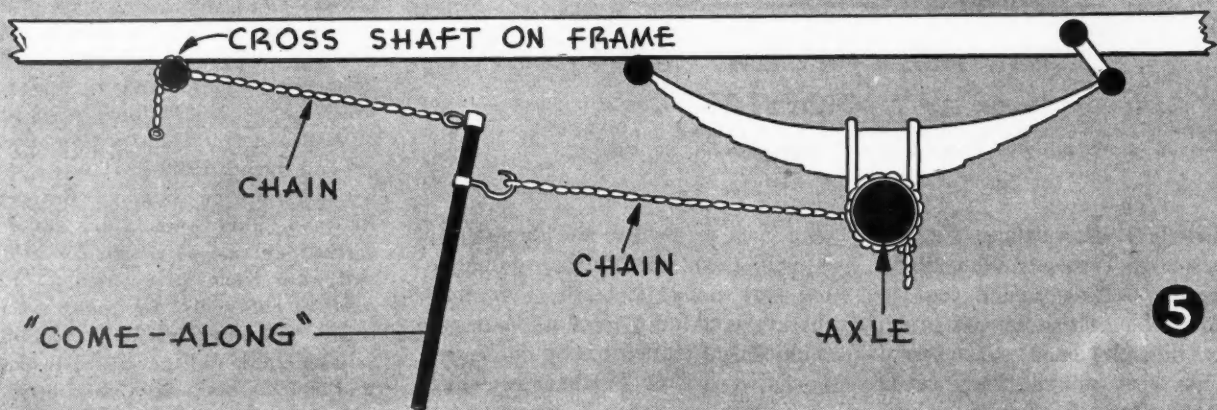
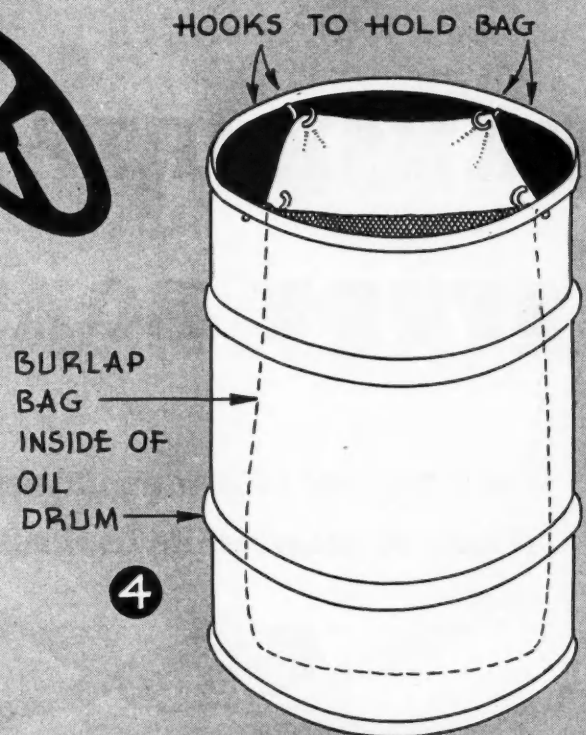
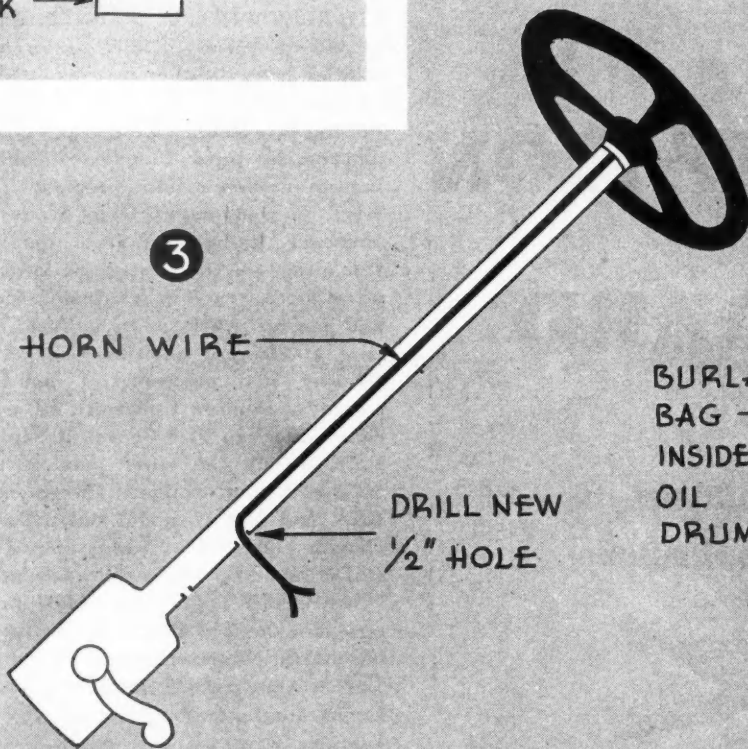
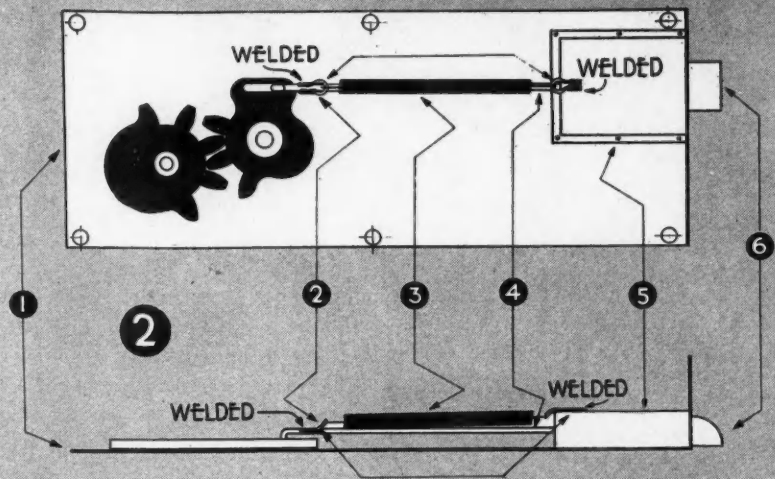
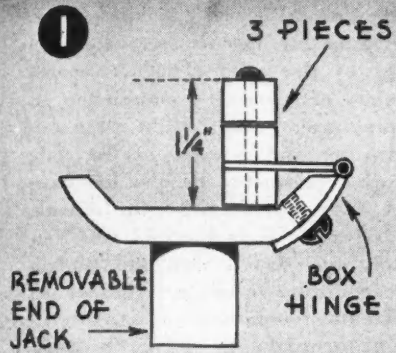
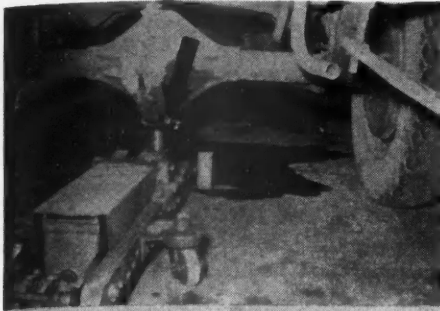
Almost anything you can do to

promote cleanliness around the shop is worth while. This idea makes it easier to empty the waste can and therefore may help to keep it so that more rubbish can find its way into it. Simply take an old oil drum and fit the opening with some kind of hooks, rings or fasteners so that a burlap bag can be hung inside to catch all of the refuse.

5. Come Along

By Ray Miller
Consolidated Freightways, Billings, Mont.

Anyone who has attempted to line up an axle on a dual setup will find the illustrated come-along a great help. One chain is looped around the axle and hooked on and another chain is fastened to any part of the truck that will stand a real pull. Naturally the longer the lever used the easier it is to pull the stubborn jobs into line.





WAYNE COY



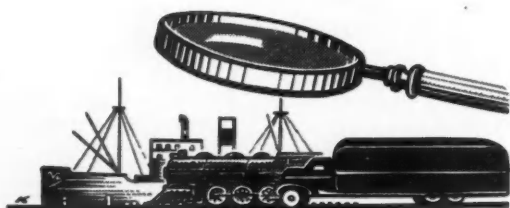
CHARLES WEST



NELSON LEE SMITH

TRANSPORTATION STUDY BOARD

An account of its appointees, its
lack of progress, its aspirations



by L. W. MOFFETT

Washington News Editor, Commercial Car Journal

IT has been slow going for the three-man Transportation Study Board. Getting under way to take up problems that are as broad and as difficult as a storm-tossed ocean has been marked by a series of delays. One after another inci-

dent has bedeviled the board. So slowed down was the board that at the very outset it became apparent that it would not meet at least one requirement made of it by the Transportation Act of 1940 under which
(TURN TO PAGE 76, PLEASE)

WAYNE COY, 37 years old, born in Shelby County, Ind., former Franklin, Ind., newspaper editor, has long shared in the political fortunes of Federal Security Administrator Paul V. McNutt, having served as the latter's undersecretary when Mr. McNutt was governor of Indiana, then as his administrative assistant when McNutt was High Commissioner to the Philippines and finally as Mr. McNutt's assistant Federal Security Administrator. In Indiana Mr. Coy has served as secretary of the state clemency board, secretary of governor's commission on unemployment relief, WPA state Administrator and director of the state welfare department. He also has been WPA field representative in Indiana, Pennsylvania, West Virginia and New Jersey, and served with the Budget Bureau during recent government departmental reorganization activities.

CHARLES WEST, born Jan. 12, 1895, at Mount Vernon, Ohio, broke into politics as a Democratic member of Congress, serving the 17th district of the Buckeye state in the seventy-second and seventy-third Congresses following an academic and diplomatic career. A graduate of Ohio Wesleyan University he received from Harvard University the degree of philosophy after three years in graduate study, and was an instructor in political science at Harvard and the College of Wooster and professor of political science at Denison University. He served as American Vice Consul at Naples, Italy, during the latter part of the Wilson Administration. Though Mr. Ickes and Mr. West did not make a Damon and Pythias team, Mr. West still is said to perform political duties—called lobbying in ungenerous quarters—for the New Deal. He is a member of the Processing Tax Board of Review and in 1935 served the Farm Credit Administration.

NELSON LEE SMITH, 42 years old, and credited with being the only member of the Board who has any transportation background, is a native of Baltimore, Md. He served eight years as a member of the New Hampshire Public Service Commission, is a former president of the National Association of Railroad and Utilities Commissioners and during 1929-1931 was a member of the New England Governors' Railroad Commission. He is author of a study on rate of return for utilities and of a book on economics. Independent politically, Mr. Smith scholastically was a professor of economics at Dartmouth College, his alma mater, and in 1928 obtained a philosophy degree at the University of Michigan.



F. C. Horner

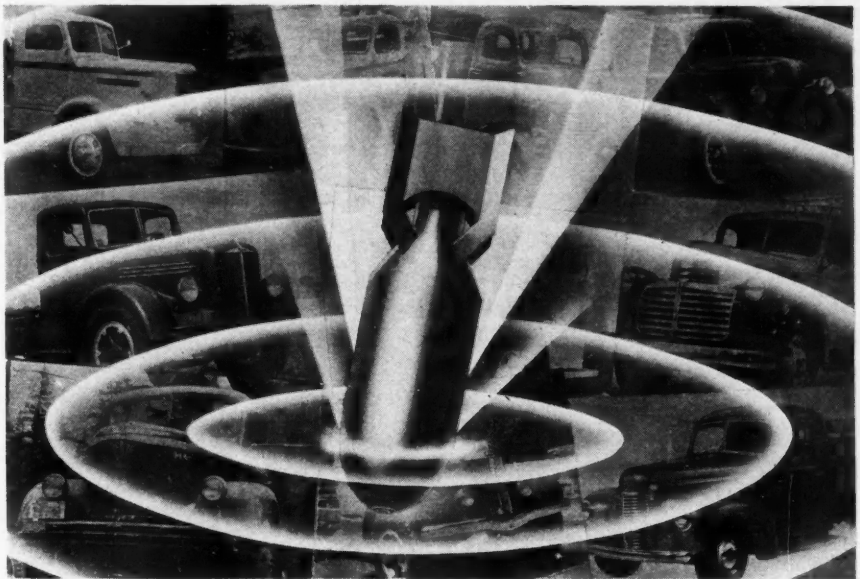
THE truck industry of the United States should begin immediately the making of plans that will enable highway transportation to fulfill every demand which civil defense requirements are likely to make on it in the event of dire emergency. In these plans the establishment of pools of reserve vehicles should be given prime consideration.

That is my advice to the truck industry based upon what I learned during the 27 days I spent recently in England as a member of the Civil Defense Mission of the United States War Department. My job was to study transportation, communications and public utilities under war-time conditions. Other members of the mission studied health, social security, child welfare, labor and military operations.

My advice is just a repetition of the advice that was volunteered in every authoritative English quarter: "Don't wait until the pressure is on; don't wait until the blitz is upon you; plan now." That advice is valuable because it comes from a country that failed to make plans itself; that restricted truck transportation and favored the railroads; that has learned to appreciate the flexibility of motor trucks, and that, because of these things, is reduced to scrambling for a solution now that a transportation emergency exists.

It is no secret that transportation is a major problem in England. The English trade press reaching this side of the water makes no secret of it. Over there, as over here, the railroads have been telling the public that they had plenty of equipment to take care of any emergency. Today the English railroads are still saying, "We can take it." They can, of course, but with no promise of delivery.

The railroads are congested, docks are congested and, tardily, the official attitude toward trucks has changed. Tardily because the relief that trucks could provide in the emergency is materially affected by the restrictions imposed in peace-time and in the early months of the war. The importance of trucks in the war effort was not recognized. Truck manufacture,



TRUCK POOLING FOR DEFENSE

A plea that the industry plan now
to handle civil defense emergencies



by **FREDERICK C. HORNER**

Member U. S. Civil Defense Commission to England
and Consultant to Ralph Budd, Commissioner, Advisory Commission to the
Council of National Defense

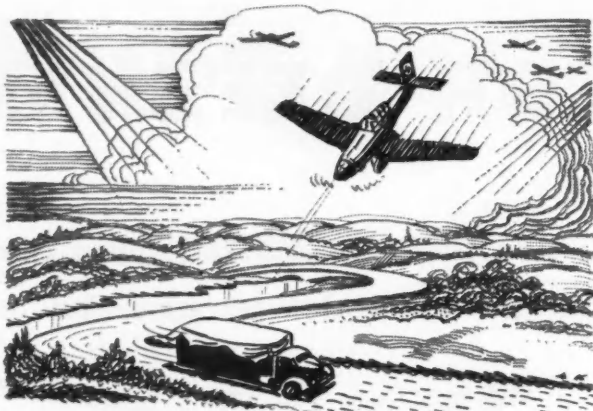
parts manufacture and fuel distribution were so restricted that, at the time I left England late in February, it was not possible for an operator to purchase new trucks and officialdom was just becoming aware that the usefulness of old trucks was being

jeopardized by the lack of repair parts. Plans were afoot to resume the manufacture of repair parts but on a very limited scale due to lack of material. The United States, of course, will be depended upon to fur-

(TURN TO PAGE 80, PLEASE)

BUCKING BOMBS AND BLACKOUTS

Take a seat alongside a British truck spinner and let him show you what driving is like today in what was merrie olde England



by AN ENGLISH TRUCK DRIVER

As told to W. K. Fudge



MY job today is certainly much more arduous and difficult than before the War, but as the maintenance of transport is vital to our war effort, I do not complain. Also I am getting twice the money I drew for the job in peace-time.

I drive a 3½-ton truck for a London company which operates a fleet

of approximately 40 trucks. Most of their work is done under contract with manufacturers: goods are fetched in bulk from the factories to my firm's depot, and there transferred to other trucks for delivery in distant parts of the country. Of course, some of the deliveries are in or near London, but my particular job is to drive a truck on what we

call "long distance" runs, which means a trip of two or three days, with probably about 20 different deliveries, and covering a total of around 500 miles.

On such trips I am quite alone. With the shortage of labor here, I have to dispense with a "mate," and the consignees help me to unload their goods at each delivery point. Nowadays they are always very glad to get their goods, and willingly help get it off the truck. Before the war consignees expected the deliveries dumped on their receiving banks, and would not touch a package whilst still on the truck. The war has certainly made a difference in their attitude in this respect.

My truck is built to carry 3½ tons full load, but I now never set out from London with less than six tons aboard; and sometimes I have had on as much as seven tons. This of course reduces my speed, and adds generally to the difficulties of each



journey. Unladen I can make 40 miles per hour, but I usually crawl out of London at not more than 10 m.p.h. on the flat. This over-loading makes it very difficult going on hills, and also affects the braking; as well as necessitating frequently stopping to refill the radiator. The great strain on the truck increases the number of mechanical breakdowns, and considerably shortens its working life.

It is not easy getting out of London. With debris and bomb-craters stopping many roads, it is necessary to make countless detours from the direct route. Often, for this reason, I have to leave the wide main road and take three sharp turns in narrow by-streets to come out on the main road again higher up beyond the blockage. These sharp turns down very narrow side-roads with a heavy truck do not add to the joys of the journey; and when I tell you that before now I have had to make as many as 20 such detours between my

garage and the outskirts of London, you will realize the loss of time and trouble entailed.

Once the open country is reached, the going is better; although sometimes even here a main road will be rendered impassable by crater or debris, or be roped off because of an unexploded bomb in an adjacent field. When this happens in a rural district, it entails not a detour along three narrow streets as in a town, but sometimes a detour of seven or eight miles down country lanes before I strike the main road again.

Apart from such "natural" obstacles as craters, debris, time-bombs, burning buildings, etc., the military have erected many concrete barriers at intervals on the roads, and these barriers are constructed to permit only a single line of traffic to pass; so one is often stalled at these barricades for 10 minutes or so whilst a line of traffic comes through from the opposite direction.

One compensation for war-time difficulties is that the 20-mile speed limit for commercial vehicles, and the regulations against overloading, etc., are more or less ignored by the police. There are still, of course, a very few motor-police on the roads, but they seldom interfere with transport drivers except in cases of really dangerous or obviously bad driving.

In many towns policewomen have replaced policemen in the control of traffic at busy points. Personally I have found these traffic policewomen very efficient.

At night one is liable to be challenged at any time by armed sentries, and if one is a little sleepy and not quick to see the waving red-lamp and stop at once, there is the very real danger of being shot. If you pass such a patrol inadvertently for whatever reason, such as faulty braking, failing to see the signal to stop, or mistaking the signal, then bullets

(TURN TO PAGE 90, PLEASE)



Fig. 1. Hood of the exhausting system in Lit Brothers' huge paint shop. Its principal function—to extract fumes from truck interiors parked nearby



Fig. 2. Each of the three gasoline pumps is housed in a fire-proof structure fitted with an exhaust fan that goes on automatically with the pump

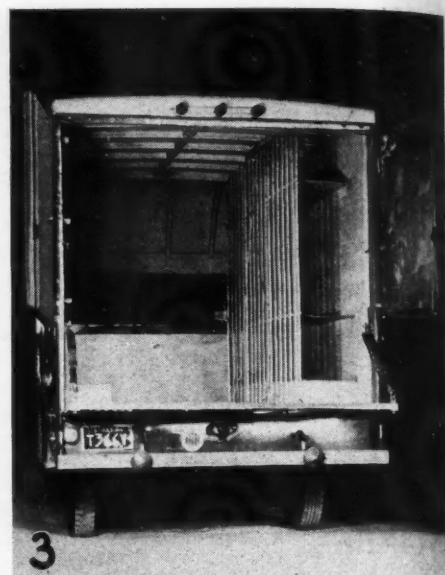


Fig. 3. A special rug rack is built into each of the delivery units. Metal hinges keep doors from swinging too far and hold them open until released

SHOP HITS FROM LITS



IT is seldom that fleetmen have their dreams of an ideal fleet come true. It is still more seldom that all those dreams come true at almost the same time. Yet that is a reasonably accurate description of what has happened to the men in charge of the delivery system of Lit Brothers, Philadelphia's largest department store from the standpoint of sales volume.

For picture, if you will, a fleet so new that major overhauls of active units have not yet become a factor in the maintenance picture, housed in a brand new garage so adequate that it provides space and equipment for every present and almost every conceivable future need, and you have indeed a fleetman's dream come true.

That dream began some time in 1938 when most of the city's leading department stores went into a huddle and emerged with a decision to wipe out their so-called "non-productive" delivery departments in favor of a consolidated service. All of the big stores joined in the move except Lit Brothers. This store belongs to a

Brand new warehouse garage provides all the facilities for maintaining this 147-truck department store fleet

by **BART RAWSON**

school that believes that a combination of good looking trucks on the road, plus well trained drivers whose average record of employment comes close to the 25-year mark, can and does pay dividends in customer goodwill. And it believes further that these features, coupled with efficient management throughout the entire delivery sphere, can and do pay dividends in dollars and cents.

There are at present 147 vehicles in the Lit Brothers fleet, considerably

more than any other Philadelphia department store has ever had, so the men in charge knew that they were playing with big stakes when they decided to keep the fleet intact. It had to be run right and the result was a delivery system that is operating today at a cost per package said to be lower than any other service in the city.

The first move for greater efficiency was already under way when the consolidation of the other fleets

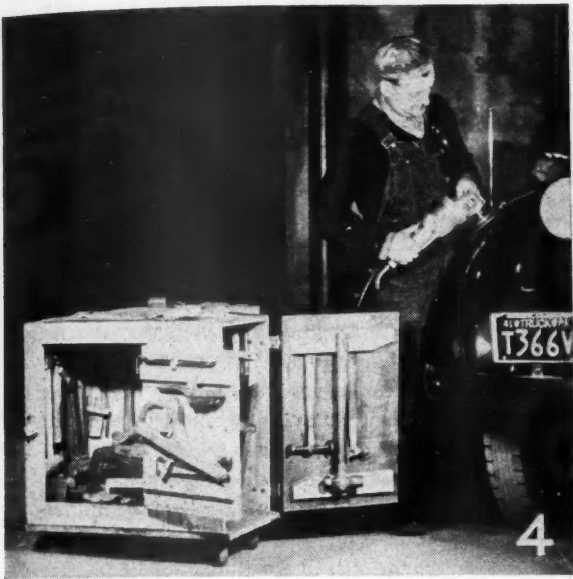


Fig. 4. Portable tool lockers for body and fender tools bring "the shop to the truck" for minor repairs. Each is fitted with a plug-in cord and convenience outlet to facilitate use of power tools

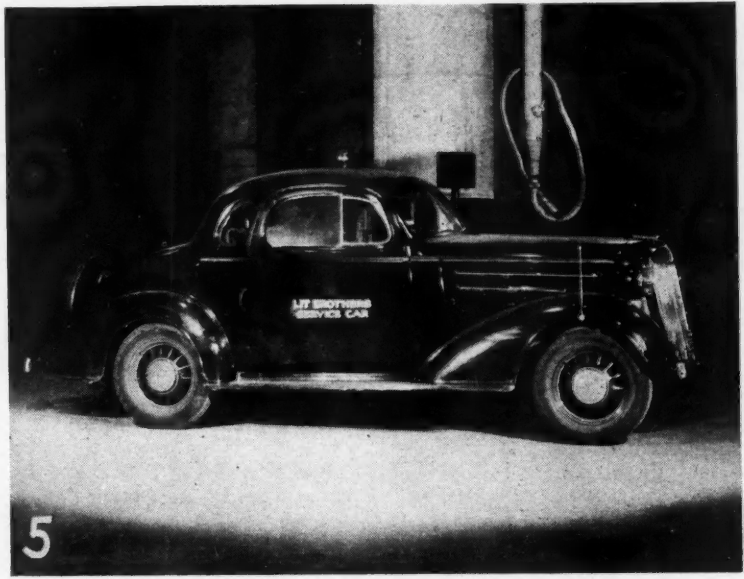


Fig. 5. A standard coupe answers light road service calls and helps make possible decentralized servicing within the garage

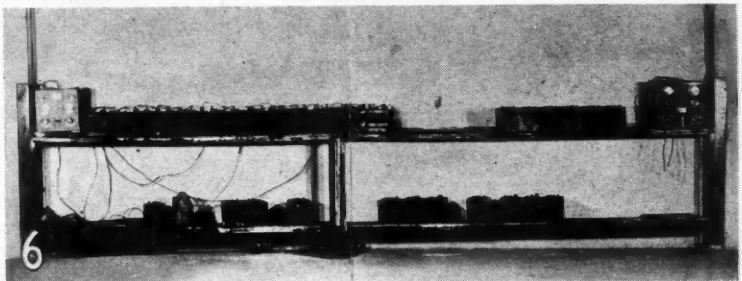


Fig. 6. Charging rack and floor are protected from acids by lead drains that carry overflow to an empty case on floor at center

took place. That was a systematic replacement of older vehicles for modern package type units with large loading areas and easy-access entrances for the driver. The bodies were standardized to two types—package and furniture delivery—and the chassis were standardized on two well-known makes.

Of note is the special rug rack built into the right side of each of the delivery trucks (See Fig. 3.) Not only does this feature provide protected carrying space for 9 ft. rugs, but also for small parcels which can be kept within easy reach of the driver. Rear doors are fitted with metal hinges which prevent them from swinging into adjacent traffic lanes and hold them in the open position until the driver releases the catch. A rear bumper, fitted with two rubber cushions, also provides a convenient step for the unloader.

By the beginning of 1940 all of the fleet's everyday active vehicles, about 110 in all, were of the new type and less than two years old. The best of the older trucks were overhauled
(CONTINUED ON PAGE 62)

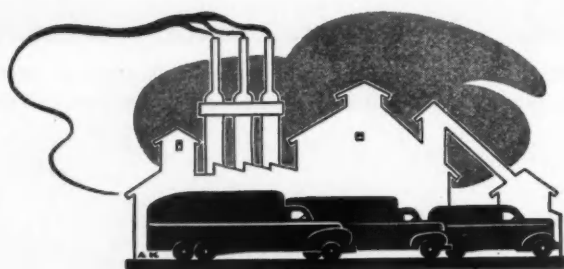


Fig. 7. Lit Brothers' active fleet is now standardized on two types of trucks. Furniture vans like this one handle bulk loads

Fig. 8. The standard package delivery units look like this. Reserve units are older but fill in the gaps during rush periods



PRODUCTION CUT CONFUSING



Many factors, subject to varying interpretations, make it impossible to gage effect on truck users

by GEORGE T. HOOK

Editor, Commercial Car Journal

EFFORTS made by COMMERCIAL CAR JOURNAL to procure answers to some of the questions raised in the editorial on page 18 resulted in confusion rather than in clarification.

Inquiries made at the Office of Production Management in Washington on April 22 produced answers that differed from those received on April 21. It is true that different individuals were contacted, but the differing reactions simply emphasized a state of confusion at this stage of the matter. The contacts even produced

a strong suspicion that the buck was being passed on to automotive manufacturers to work out the details, subject to O.P.M. approval.

On the 21st, COMMERCIAL CAR JOURNAL was informed that manufacturers making both passenger cars and trucks must cut each type by 20 per cent. Also that the curtailment by 20 per cent is to be made by each producing company. Thus a corporation with numerous subsidiaries may not order an overall 20 per cent cut and pass on a disproportionate reduction to one producing subsidiary to

the advantage of a sister company.

On the 22nd, COMMERCIAL CAR JOURNAL was informed that the 20 per cent was intended to be an overall cut. It does not mean a rigid cut of that amount for each type of vehicle, i.e., passenger car, truck and bus. COMMERCIAL CAR JOURNAL was told that there could be a greater cut than 20 per cent in one unit and type and less than a 20 per cent cut in another unit and type provided the net average was a 20 per cent cut.

Inquiries made in Detroit indicate that manufacturers understand the 20 per cent cut to be an overall reduction and are making arrangements accordingly. It was understood that manufacturers had until April 24th to work out details as they applied to their own products and to submit their proposals to the Office of Production Management. Another week was expected to elapse before O.P.M., after consultation with Army, Navy and Administration officials, gave its decisions. It is quite possible that many proposals will have to be revised and the revisions reconsidered by O.P.M., and that it will be well into May before results of the program can be approximated.

The feeling among manufacturers in Detroit was that reductions could not be allocated on a uniform basis. Each manufacturer will have a problem that must be solved on an individual basis. It was taken for granted that some manufacturers of cars and trucks would cut car production more than 20 per cent because of their truck commitments.

COMMERCIAL CAR JOURNAL was unable to procure a clearcut answer either in Washington or in Detroit as to whether O.P.M. wanted a 20 per cent reduction in units or a 20 per cent saving in materials. Mr. Knudsen, in announcing the agreement with leaders of the automotive industry, said the reduction would amount to 1,000,000 units but yet gave as the main reason for the move the need to make available manpower, materials and facilities for the defense load. This is confusing because, theoretically, it would be possible, by reducing the unit production of cars more than the production of trucks, to effect less than an overall reduction of 20 per cent in material. That holds true in the case of an exclusive truck manufacturer. By cutting down the unit production of

smaller capacity trucks more than the production of heavy trucks the 20 per cent reduction in units would not represent a 20 per cent reduction in materials. No thought seems to have been given to the fact that in the case of trucks a 20 per cent unit reduction is not the equivalent of a 20 per cent material saving. It would be possible for certain truck manufacturers to effect a 20 per cent materials saving while increasing their unit production.

In the preliminary announcement of the reduction agreement the motor truck seems to have been ignored as an instrument vital in the civil defense program as well as in the defense program of the armed forces. However, it may be that O.P.M. has not lost sight of this fact and will bear it in mind when reviewing the proposals submitted by automotive manufacturers. There was a possibility that truck manufacturers would seek to minimize the curtailment of truck production by pointing out to O.P.M. that conservation of certain materials more vital to other defense industries could be effected by substituting other less vital materials.

COMMERCIAL CAR JOURNAL could get no official answer to the question dealing with quota adjustments in the case of manufacturers whose production was curtailed by strikes. Unofficially the belief was expressed that the 20 per cent reduction would apply to actual output no matter how much it was reduced by a strike. This unofficial expression must be taken with reservations. If a producer experienced a 60-day stoppage of production, an additional cut of 20 per cent in his output might put him into red ink. This could hardly be considered the objective of the O.P.M. It is quite likely that adjustments will be made, not only in the case of strike-affected companies but in the case of small companies where the 20 per cent might represent the difference between profit and loss.

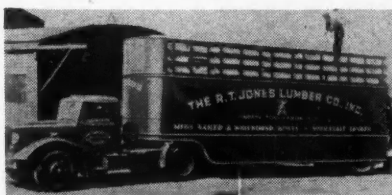
It was impossible to find out in Washington how many trucks would be called for under the Lease-Lend law or how many trucks the Army would require during the next model year. Consequently, until there is some determination of the demand that the Army and Lease-Lend officials will make of the truck industry, it will not be possible to gauge the effect of the reduction program on civilian users of motor trucks.



Interstate Iron Co., Buhl, Minn., operates three of these Walter tractor-trailer combines. Gross weight is 120,000 lb. and pay load figures close to 80,000 lb. Powered with Hercules DFXD engines they have to negotiate 10 per cent grades



A rose-grower, two miles from the railroad, wanted a 40,000 lb. refrigerated box car for storage. So it was just another job for Contractor Bill Barhite and his Fruehauf trailer



This Jekyll and Hyde trailer carries 6 to 8 tons of boxes when equipped as shown. But with side extensions removed it's ready for a 12-ton load of lumber. The tractor is a Brockway



Recently delivered to the town of Silver Spring, Md., this type 45 Mack can be used as ambulance or emergency truck and is equipped with stretchers, generator set, floodlights, cable, capstan-winch and other gear



"Beauty and the Best" was White Motor Co. caption to this photo of Radio Star Dorothy Sims and a Super-Power White. Both build good relations for Central Truck Lines, Inc. (Fla. & Ga.)



A Wisconsin county highway department is all set for tough going with this GMC diesel truck and its five-yard Heil body. Features include all-steel sub-frame and a twin cylinder hoist



Macy's New York Department Store fleet was recently augmented by these new Diamond-T cab-forward trucks fitted with special furniture handling bodies.



Editorial

THE ICC BRAKE TESTS

Results of 1700 tests show that most interstate trucks will not stop in 30 ft. at 20 m.p.h. but they fail to identify the causes or point to a means of improvement

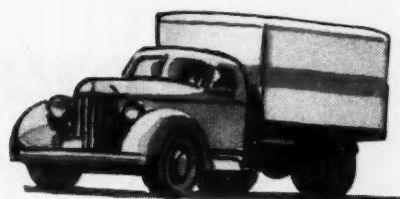
DURING the latter half of 1940 the Section of Safety, Bureau of Motor Carriers of the Interstate Commerce Commission tested the braking performance of 1700 interstate vehicles in 30 states to determine what relation the actual stopping distance of vehicles in service had to the published requirements of the Bureau of 30 ft. from 20 miles per hour, which rule has been in force since July 1, 1937.

The report on this activity, just published, indicates very clearly that either the Bureau's conception of adequate braking needs an overhauling or the industry's conception of the brake equipment necessary to provide this standard of braking needs an overhauling. Just where this latter overhaul should begin, in case the Bureau elects to stand firm and enforce its ruling, is not made clear because in spite of a terrific number of man-hours and sincere effort, the report provides a mass of unrelated statistics, their irrelevancy becoming apparent when an analysis, to determine the reason for the variation between law and performance, is attempted. The only clear conclusion that can honestly be made from the report is that relatively few of the buses and trucks now on our highways can meet the I.C.C. braking requirements. Most truckmen were aware of this before the study was made.

In tabulating the results of the tests, trucks were thrown into gross vehicle weight classifications. These classifications were determined by weighing the trucks and loads at the time of test. Such weight classification is misleading because it does not distinguish between an overloaded truck and an underloaded truck. Quite obviously this will have a direct bearing on braking performance. If a truck is stopped for test part way on its route and is only half loaded is it a loaded truck or an empty truck? If it is classed as a loaded truck and the truck is able to handle twice its weighing-time load and is licensed for twice that load, the brake performance will probably be so good as to give a completely incorrect picture of what that truck, normally loaded, will do.

Conversely the overloaded truck will distort the picture at the other
(TURN TO PAGE 84, PLEASE)

**A good truck
has good brakes**



**A good driver has
good judgment**



**and
good**

BK
VACUUM
**POWER
BRAKING**
A BENDIX PRODUCT

*makes them
both better*

**The 10 to 1
favorite among
all forms of
*Power
Braking***

YOUR magnificent record in highway safety and operating efficiency—you men of America's truck industry—would hardly have been achieved unless you had these three great assets:

1. Good trucks with good primary brakes.
2. Good judgment behind the steering wheel.
3. Good power braking on a large percentage of your trucks.

We build the third of these vital assets, as you know . . . Bendix BK Controlled Vacuum Power Braking. In simple justice to a magnificent mechanism, proved on millions of vehicles, we remind you of its importance; we urge you to keep your service personnel informed of the continual improvements introduced to enhance its usefulness to you; we respectfully suggest that you bear in mind and make fullest use of the thousands of trained Bendix men in towns and cities from coast to coast, who stand ready to render you every desired service on Bendix BK Power Braking.

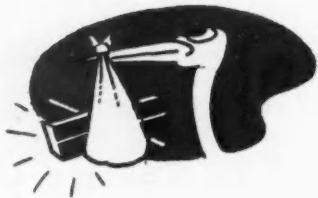
Your trust in so excellent a product demands and gets our utmost care and attention.

BENDIX PRODUCTS DIVISION

OF BENDIX AVIATION CORPORATION • SOUTH BEND, INDIANA

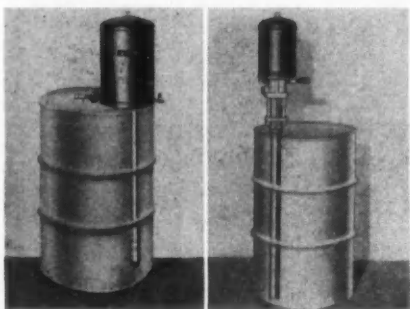
In Canada: Bendix-Eclipse of Canada, Ltd., Windsor, Ontario

SHOWCASE OF NEW PRODUCTS



Alemite Barrel Pumps

New and highly efficient lubrication barrel pumps especially designed for heavy duty usage by fleet garages are announced by the Alemite division, Stewart-Warner



Corp., 1876 Diversey Parkway, Chicago. One type, a volume barrel pump for 400-lb. oil drums, operates with a 40-to-1 piston delivering up to 6 lb. of semi-solid lubricant per minute. When equipped with a seven-to-one piston it can deliver up to 15 lb. per minute. For smaller setups there are high and low pressure models designed to fit both 100- and 400-lb. drums.

A companion unit is the new Alemite air-operated motor oil pump capable of delivering 5 gal. of S.A.E. 10 oil per minute and 3 gal. of S.A.E. 60 per minute. This pump is adjusted to fit directly on the original 55-gal. oil drum. It is equipped with Alemite's new and improved Aldura air valve.

Oakite No. 70 Wash

A newly developed bus and truck washing material combining complete safety to painted, lacquered, or enameled surfaces with highly effective grease and oil removing properties, has just been announced by Oakite Products, Inc., 26D Thames Street, New York.

Known as Oakite Composition No. 70, this new material is reported to be completely safe to use, particularly on the newer and sensitive synthetic finishes. According to the manufacturer, it can be employed at a concentration two to three times that ordinarily required without affecting the finish, and even if accidentally used at high concentration, no damage will result.

Along with this safety factor, the material provides sufficient wetting-out charac-

teristics to thoroughly loosen and remove light oil, grease and dirt comprising the road grime with which buses and trucks become coated in most sections of the country. It is also said to be remarkably free-rinsing and does not leave surfaces streaked. Another advantage of the material is its reported ability to cling to vertical surfaces, so that the washing can benefit by a reasonable soaking period.

Air-Peen Pneumatic Hammer

A pneumatic hammer designed to improve piston servicing has been announced by the Hastings Mfg. Co., 375 E. Mill Street, Hastings, Mich. The new tool, operated from a regular air compressor, re-sizes, expands and reshapes either iron or alloy pistons to compensate for wear and to allow the original flexing action of the piston skirts. The Air-Peen is available



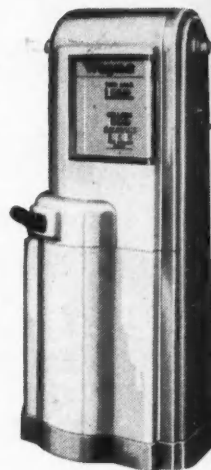
through Hastings distributors when purchased under the Service Tool Plan with a selection of Steel-Vent Motor Engineered Sets.

Super-Capacity Steam Cleaners

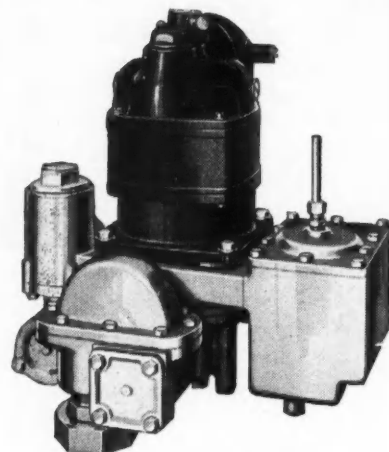
Two new super-capacity Hypressure Jenny Steam Cleaners, Models J-L and J-M, have just been announced by Homestead Valve Manufacturing Co., Coraopolis, Pa. These new models are said to be more powerful than previous models, which means faster and more thorough cleaning of automotive parts, chassis, motors, machinery, floors, walls exteriors of buildings, etc. A simplified automatic-compound feed, greater portability through the elimination of all dead weight, and greater simplicity of construction and operation, are among the new features included in these models.

Wayne Model 100 Gas Pump

Many important features, including a built-in hose reel and a new-type pumping unit, are noted on a new gasoline dispensing pump offered by Wayne Pump Co., Fort Wayne, Ind. The special reel, which contains 14 ft. of hose is mounted on a horizontal swivel that automatically feeds in the direction of pull and makes it possible to service any tank within 14 ft. of the island.



The new Centurbi pump (centrifugal plus turbine) combines a turbine action with the original centrifugal action. It is



said to prime as rapidly as a rotary pump, to have five times the vacuum power of the Wayne centrifugal pump, to eliminate air in its own action, and to handle any normal lift previously handled by any rotary pump.

Known as the Model 100, the new unit is housed in a streamlined steel case which stands only 63½ in. high. It has an improved commuting mechanism, adequate illumination and large, easily read numerals.

Valvoline's New HPO Oil for Heavy-Duty Engines

After exhaustive tests on different types of trucks, both diesel and gasoline, under every conceivable kind of operating condition, Valvoline Oil Co., of Cincinnati, announces a new high viscosity index Pennsylvania oil that is said to be an answer to the fleet owner's request for an all-around "peak load" lubricant. The new heavy duty oil, known as Valvoline "HPO" (High Power Output), is said to lubricate perfectly at extreme heats, to avoid costly repairs due to oxidation "varnish" and to clean the motor of sludge as it lubricates.

Valvoline does not claim that the new "HPO" will not oxidize, although its oxidation is delayed. (TURN TO PAGE 42, PLEASE)



Part of the 50-truck fleet of the Advance Baking Company, Kansas City, Mo., another prominent Exide user.

Exide

HEAVY-DUTY
TRUCK BATTERIES

Exides deliver 18 to 20 months' service in fleet of Advance Baking Company

THE 50-truck fleet of the Advance Baking Company serves Kansas City and vicinity with ABC Bread, covering over a million miles a year in making deliveries. Dependable Exide Batteries help these hard-working units to be on the job each day without delay. This operator is receiving an average of 18 to 20 months' service from every Exide.

Like other Exide users the nation over, the Advance Baking Company is enjoying extremely low battery cost per mile. This is because of the faithful dependability and the long, trouble-free life built into every Exide Battery.

Exides today deliver an average of 25% longer life than ever before in their history.

These batteries are also available with wood and fiberglas separators for "cycling" service. See your Exide Distributor today, or write us for full details.



THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia
The World's Largest Manufacturers of Storage Batteries for Every Purpose
Exide Batteries of Canada, Limited, Toronto

NEW PRODUCTS

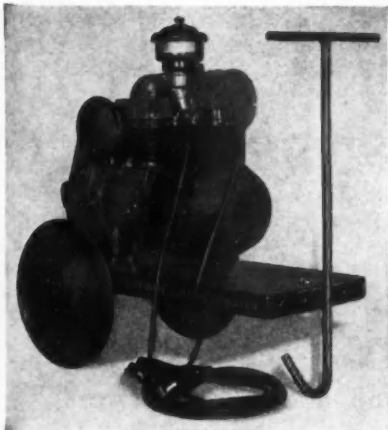
(CONTINUED FROM PAGE 40)

duction point is very high. However, the new oil is said to eliminate the results of oxidation. Its "detergent" properties hold the products of oxidation in suspension. Tests further indicated that while oxidation particles were held in suspension and were circulating through the engine that the oil lost none of its lubricating qualities. Oxidation particles were kept loose, and showed up in the oil as "dirt," which was easily drained off, thereby stopping oxidation problems before they had a chance to attack the engine.

The fact that bearing corrosion is also caused by oxidation was a specific problem to be overcome by the new oil. Many types and combinations of oxidation inhibitors were tried and tested before the particular one used in "HPO" was adopted. Even under the most trying conditions, the new oil did not show a corrosive tendency toward any type of bearing metal.

Gas-Powered Battery Booster

Recognizing the growing need for a type of fast charger to make battery boosting possible where main-line power is not available, W. D. Foreman, 5361 S. State St., Chicago, is offering a new, gasoline-powered, quick charger. This new Foreman Battery Booster is powered by a direct-connected, four-cycle, ball-bearing



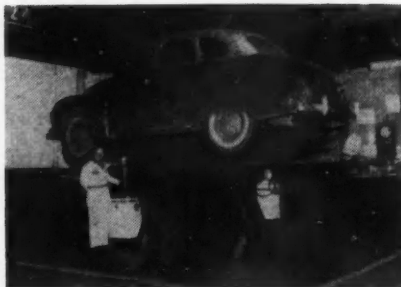
gasoline engine, equipped with air cleaner and float feed carburetor. The motor has 50 per cent over capacity, and is capable of delivering a full charge in 40 min.—without injury to battery because of its full automatic features. Details will be furnished by the manufacturer.

Toledo Offers Improved Scales

Improvements offering added structural advantages in its "Truckmaster" and "Truckweigh" motor truck scales have been announced by the Toledo Scales Co., Toledo, Ohio. New features include self-gaging pivots, improved suspension assembly and the seven lever system. A recently-published brochure, describing and illustrating these innovations, may be obtained by writing to the manufacturer.

Kellogg-American Lift

Many advantages, including economy of operation and ease of installation, are claimed for a new free-wheel lift recently introduced by the Kellogg Division of American Brake Shoe & Foundry Co., 97 Humboldt St., Rochester, N. Y. Owing to the short stroke of the twin pistons, only



18 gal. of oil are needed, and the lift is said to operate on 15 lb. of air pressure for each 1000 lb. of load. Thirty-nine-inch excavations take care of the pistons, and 12 in. for sub-frame. This lift is listed as standard by the Underwriters Laboratory, Inc.

New Goodrich Truck Tire



The Speedliner Silvertown, a new truck tire of special construction with an eye to increased mileage, has been introduced by the B. F. Goodrich Co., Akron, Ohio. Extra mileage is claimed to be due to Load-Shield, a new construction principle in which the breaker

strips are placed between the plies to lessen heat and permit the use of a thicker, wider and flatter tread.

Point Aligning Tool

A distributor point aligning tool has just been announced by the K-D Mfg. Co., Lancaster, Pa. It is said to service all makes of distributor points, both stationary and breaker arm.

The forked end of the T handle adjusts channel type breaker arms, the end with the sleeve adjusts ribbed high-speed breaker arms and the milled end of the tool adjusts stationary points.

C&C Charg-A-Lyzer

Designed to make a capacity test of each individual battery cell under normal starting conditions, an automatic 80 amp. fast charger and analyzer is offered by the McCoplin-Christie Corp., Ltd., 4920 S. Figueroa Street, Los Angeles, Cal. Known as the "C&C" Charg-A-Lyzer, the unit gives the rate of charge the battery can take according to the condition and size and also the number of minutes of fast charge it can safely take.

An unusual feature is the fact that test

leads are independent of current carrying leads. Cell voltage is determined during charge, rather than discharge whereby a partly sulphated battery will receive a shorter charge at the fast rate.

The charger is equipped with a time switch and an overload switch to protect the transformer and rectifying element, which is of the copper sulphide type. For 115-volt, 50/60 cycle AC current.

Ramco Rebuild Rings

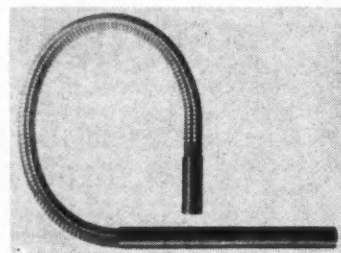
Ramco's new Engine Rebuild Set Piston Rings, available for 11 popular cars, are priced low and recommended for use in connection with new pistons and reconditioned cylinders. Each set includes a one-piece tapered compression ring, a low-pressure spring-type compression ring and a spring-type channel oil ring of a new and improved design.



All cast iron parts of these rings are chemically coated to prevent rust and to eliminate friction during the break-in period. The entire combination has a predetermined low wall pressure comparable with Ramco 10-Up Piston Rings. For details write Ramsey Accessories Mfg. Corp., 3693 Forest Park Blvd., St. Louis, Mo.

Permite Flexible Tail Pipe

A new flexible tail pipe is the latest addition to the Permite line manufactured by Aluminum Industries, Inc., Cincinnati, Ohio. Constructed of heavy wall inter-



locked steel tubing, the tail pipe is easily shaped by hand to fit any vehicle. A few days of service, however, causes it to become as rigid as a conventional unit. A 16-in. tip provides for shortening the pipe without cutting the flexible tubing.

DT Quick-Kleen Adaptors

With D T Quick-Kleen adaptors you can clean transmissions and differentials with air pressure. Just insert the proper unit in the fill plug, open the drain plug, attach



the air line to the special fitting and blow sludge out through the bottom. List price, \$6.25. Details from D T Quick-Kleen Co., Box 823, Tulsa, Okla.



Another ALL-TRUCK FLEET OF 3/4 TON Multiple-Stop FEDERALS—

...for SEVEN BAKER BROTHERS of PITTSBURGH—
to HELP LOWER THEIR PACKAGE-MILE COSTS!

★ Pat-a-Cake, Pack-a-Loaf, Baker Man,

Deliver your bread as fast as you can.

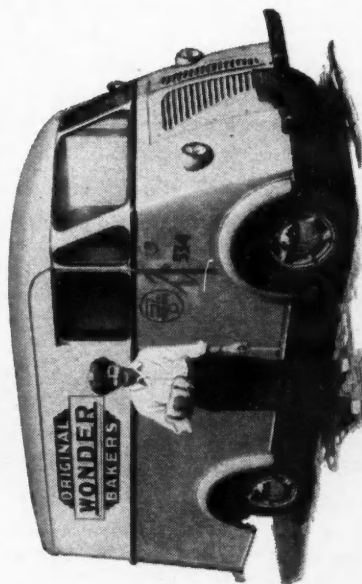
With a FEDERAL FLEET to carry your load,

You're Money Ahead—and Ahead on the road.

★

This fleet of 51 Federal 3/4-ton trucks for store-to-door delivery was purchased on the basis of Federal's outstanding performance records and exceptional economy advantages. The excessive demands placed on package delivery trucks that are stopped and started many times daily require construction features out of all proportion to the loads carried—hence all the more need for "all-truck" design found in Federal built-to-the-job trucks.

For thirty-one years Federal has been building trucks exclusively—has provided a sturdiness of



If you have a package delivery problem, learn how Federal has solved this complex transportation need with its multiple stop design.

From 3/4-ton to highest tonnage capacities, Federal builds a complete line of standard and C. O. E. trucks to meet every haulage problem and transportation need.

design and all around efficient dependability that is a "buy" word with experienced fleet operators. They are more than ever the choice of men who distinguish quality and prefer those inherent advantages of consistent reliability to the grave uncertainties associated with bargain prices.

For information on Federal's complete series of job-fitted trucks, consult your nearest Federal Dealer—or write the factory.

FEDERAL MOTOR TRUCK CO., DETROIT, MICHIGAN

For 31 Years—Known in Every Country—Sold on Every Continent

FEDERAL TRUCKS

"TON FOR TON IN '41—FEDERAL LEADS THE WAY!"

NEWSCAST



ICC Hearings on Non-Driver Regulations to Begin May 19

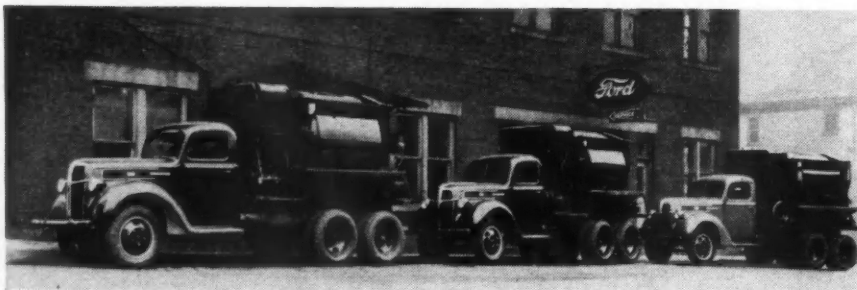
Hearings to determine what hours of service regulations if any should be prescribed for mechanics, loaders and drivers' helpers of interstate motor carriers will begin in Chicago on May 19. It will be recalled that these classes of employees were brought under ICC jurisdiction by an ICC decision dated March 4, and also that the Wage-Hour Division held recently that such classes of workers should not be exempt from Wage-Hour rulings until specific regulations be prescribed by the ICC.

New Interpretative Bulletin

Interpretative Bulletin No. 9, issued by the Wage and Hour Division of the Department of Labor and covering exemptions for employees of motor carriers, has been revised as of April, 1941, to include latest decisions with regard to the status of mechanics, loaders and drivers' helpers currently dangling in the balance between wage-hour laws and ICC regulations.

Nation-Wide Truck Census

A nation-wide census of trucks and buses is to be started "probably in June," according to Thomas H. MacDonald, commissioner of the Public Roads Administration and chairman of the Highway Traffic Advisory Committee to the War Department. Uniform questionnaires, carefully prepared to provide needed information, will be sent to all truck and bus owners by state motor vehicle departments. States that contemplated local surveys have been asked to abandon their plans in favor of the uniform poll.



Three of a new fleet of five Thornton four-rear-wheel drive equipped Ford trucks on a rush defense construction job at Morgantown, Va., where an important munitions plant is being built. The bodies are 3-3½ yard Yaeger mixers. With the Thornton Tandem rear axle units they are hauling loads of 25,500 lb. gross vehicle weight for the McLain Sand Co. of Morgantown.



Recent promotion in the engineering line-up at White Motor Co. resulted in promotions (left to right) of Forest S. Baster to vice-president in charge of engineering; Robert Cass to chief engineer, and O. F. Quartullo to chief engineer, White Horse Division.

Business Briefs

Diamond T Motor Co., Chicago, has completed the first of several army contracts with the delivery of 998 six-wheel drive four-ton trucks to the Quartermaster Dept.

Keeshin Motor Express, Inc., Chicago, is receiving deliveries on \$50,000 worth of Reo tractors (most of them with 288 cu. in. engines) and 120 Fruehauf stainless steel trailers. The new units bring the fleet's total to approximately 1900 vehicles.

Reporting on recent non-military orders, Reo Motors, Inc., points with pride to orders received on a single day, recently, totaling \$225,000. Included was an order for 24 heavy-duty models from Queensland Motors, Pty. Ltd., Melbourne, Australia.

Comfort Cushion Co., Detroit, makers of airfoam and airflo cushions, has moved to larger quarters, 5084 Loraine.



Merchants Creamery Co., Cincinnati, used the space between corrugations of its new outside-frame Trailmobile trailer for 1½-in. Dry-Zero pads; thus attained semi-insulation with no loss of loading space. Smooth panels were installed on outside. Tractor is International K-7 with sleeper cab.

Supreme Court Holds that ICC Can Control Small Transfers

In a decision handed down on April 14, the U. S. Supreme Court ruled that transfers of motor carrier certificates of public convenience and necessity are subject to ICC approval even though the transaction involves less than 20 vehicles. The court's reasoning in the case involved interpretation of sections 212 (b) and 213 of the Motor Carrier Act, the latter containing specific exemptions for fleets under 20. But "read together," the court said, "the two sections can mean only that a transfer involving not more than 20 vehicles is governed by section 212 (b)."

Coy Off Transportation Board

At the moment of going to press word was received from Washington that Wayne Coy had been named head of the Office of Emergency Management. This removes him as chairman of the Transportation Study Board (see page 30). It was considered likely that a southerner would be named in his place to meet the demands of Southern Senators.

Hercules Disowns Two Models

A letter from E. L. Latta, service engineer of Hercules Motors Corp., disowns models 10-C and 18-C listed on page 47 of the April issue as never having been of Hercules parentage. He's right. A check showed they were actually Hudson models.

Getting Personal

Reo Motors, Inc., has named E. R. Kroblen as general sales manager. For the past three years he has been manager of the Chicago branch.

The Four Wheel Drive Auto Co., Clintonville, Wis., has named Carl Stieger, prominent Wisconsin industrialist, as a director of the corporation and S. H. Sanford, manager of FWD's western sales division, as secretary. Both men fill vacancies caused by the death of Frank Gause. The company has also announced the death of Charles Thomson, export manager, on April 5.

(TURN TO PAGE 46, PLEASE)



VALVES, RINGS *and* BEARINGS STILL LIKE NEW After 2 YEARS OF TOUGH SERVICE

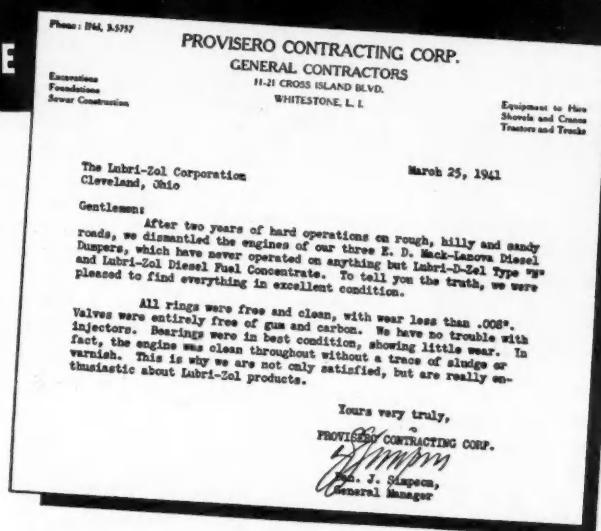
Lubri-Zol protects Diesels in Mack-Lanova Dumpers on Pennsylvania Turnpike job...

● A most enthusiastic booster of Lubri-Zol Diesel Lubricating Oil and Diesel Fuel Concentrate is Mr. Dan J. Simpson, General Manager of the Provisero Contracting Company, of Whitestone, Long Island. He has been operating his 25 big Mack Dump Trucks, each handling a 20,000 to 30,000-pound payload, on tough assignments like the construction of the New York Municipal Airport and the Pennsylvania Turnpike.

Note in Mr. Simpson's letter what he has to say about Lubri-Zol.

For Diesel engines, Lubri-Zol has two wear-and-expense reducing products—"Lubri-D-Zel" Lubricating Oil and Lubri-Zol Diesel Fuel Concentrate.

"Lubri-D-Zel" is available with either paraffinic base (Type "P") or naphthenic base (Type "N"). "Lubri-D-Zel" penetrates every clearance and coats all surfaces with a thin, tough film that protects against corrosion. Its unique gum solvent properties prevent the formation of gum and sludge and so keep valves, rings and other vital working parts clean, free and efficient.



Lubri-Zol Diesel Fuel Concentrate ("DFC") is a fuel additive which helps prevent the accumulation of carbon deposits in upper cylinders, on valves, behind piston rings, and in fuel injector mechanism. Not only decreases maintenance costs, but also reduces fuel and lubricating oil consumption.

Use of these Lubri-Zol products assures you lowered operating and maintenance costs. Let us *prove* it.

THE LUBRI-ZOL CORP., CLEVELAND, OHIO

Fully Protected by U. S. and Foreign Patents

*Buy your oil on
the cost per mile...
and save... with*

LUBRI
REG. U.S. PAT. OFF.
ZOL

NEWSCAST

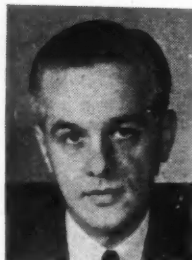
(CONTINUED FROM PAGE 48)

H. D. Hubbs has been named sales manager of the Monmouth Products Co., Cleveland. He was formerly associated with Cleveland Tractor Co., the United Refining Co. of Warren, Pa.



C. F. Watson, recently named sales manager of Studebaker's truck division. His last assignment was that of regional manager at Cleveland.

F. A. Thomas succeeds C. F. Watson as manager of Studebaker's Cleveland regional office. He has been on special assignment at South Bend.



E. E. Richards, Harvard Business School graduate and former investment banker, has joined the Studebaker organization as assistant to the president.

A recent shift of executive personnel at Laminated Shim Co., Inc., Glenbrook, Conn., names E. B. Nisbet as executive vice-president; E. R. Young as vice-president in charge of production, and Richard Seipt as vice-president in charge of sales.



Don G. Furlong, recently promoted from Detroit City to Detroit regional truck manager by Dodge Brothers Corp.

Additional Dodge appointments include that of C. A. Templeton, former regional

TRUCK PRODUCTION
(U. S. and Canada)

	1941	1940	Per Cent Change
January.....	100,878	74,016	+35.0
February.....	104,103	71,690	+45.5
Two Months.....	204,981	145,706	+40.7
March.....		75,285	
April.....		76,807	
May.....		74,139	
June.....		67,787	
July.....		74,005	
August.....		41,533	
September.....		56,703	
October.....		86,104	
November.....		93,068	
December.....		98,747	
Total.....		899,884	

truck manager at Detroit, as assistant regional manager at Chicago; F. J. Brinkman as district manager at Evansville, and A. Haden as regional merchandise manager at Philadelphia.

W. H. Johnson and F. L. Anderson have joined the Dodge organization as district truck managers in the Mansfield and Akron territory and in the Greensboro (N. C.) region, respectively.

Bear Mfg. Co., Rock Island, Ill., has appointed Lewis L. Gander as Ohio representative and S. S. McClelland as its agent in the Portland, Ore., area.

Priestley Medal to Midgley

To Dr. Thomas Midgley, Jr., vice-president of Ethyl Gasoline Corp., N. Y., goes this year's Priestley Medal, highest honor bestowed by the American Chemical Society and awarded for outstanding achievement in Chemical Science. Dr. Midgley is credited with the discovery of tetra-ethyl lead as an antiknock agent.

Edward S. Kramer, recently made president of Kramer Bros. Freight Lines, Inc., Detroit, succeeding his father, the late Steve S. Kramer.



Borg-Warner Clutch Manual

Although a new Borg-Warner clutch service manual is written around the idea of selling clutch service to the customer its service information makes it well worthwhile for the fleetman's library. Distribution is through your Borg-Warner jobber. There you will find a free copy with no strings attached.

LETTER TO THE EDITOR

TO THE EDITOR:

Your article under the title of "A Check-up of Fast Chargers" in the February issue of COMMERCIAL CAR JOURNAL was, on the whole, an excellent and timely presentation of the development of High Rate Battery Chargers. I wish to amend, or rather to supplement, one or two statements, particularly those made in the second paragraph of page 24.

For either orthodox or high rate battery charging there are fundamentally two methods of furnishing the direct current into a battery: either by means of rotating machines (motor-generator sets) or by means of static electrical devices employing one or the other form of rectifying elements. As far as the rectifying elements are concerned, they might be either of the bulb type or the metallic (dry disc) type.

As to the metallic rectifiers, there are at present three distinctly different makes. Some 30 years ago the copper-sulphide type came into being, and even today is enjoying a wide application in its particular field. In the early '20s the copper-oxide type was introduced in the form of washers that make stacks of wide varieties and ratings. In the late '20s Selenium Rectifiers were perfected and found an even greater scope of applications. Recently, however, the copper-oxide type of rectifier passed through a new phase of development and became available in its improved plated style of construction.

The Selenium Rectifiers, such as became available in this country as a 100 per cent American product only during the last two years, are a continental development and have been manufactured and widely used in several European countries during all the '30s.

Broadly speaking, the merits of each of these three types of metallic disc or plate rectifiers depend on the application. The cost factor is important. To obtain the outstanding features, the technique of the manufacture of the Selenium Rectifiers is necessarily an expensive one today. The Copper Sulphide Rectifier, on the other hand, is in the lowest price bracket, whereas the cost of the Copper Oxide Rectifier lies somewhere between.

The Selenium Rectifier, however, seems to offer several advantages: they are very small in size, perform uniformly under a wide range of temperatures, have small amount of losses, serve well as electric current blocking devices and if carefully made, properly engineered and intelligently utilized, show an exceedingly small amount of "aging" or deterioration with usage and

(TURN TO PAGE 96, PLEASE)

New Truck Registrations by Makes by Months*

	Auto-car	Brock-way	Chevrolet	Diamond T	Dodge	Federal	Ford	G.M.C.	Hudson	International	Mack	Plymouth	Reo	Sterling	Studebaker	White	Willys	Misc.	Total
January.....1941	189	155	20,144	447	4,499	125	16,175	9,163	65	7,573	674	866	81	34	231	908	82	300	61,712
January.....1940	143	117	15,997	536	4,345	153	13,282	3,142	56	5,538	572	718	11	22	85	422	173	338	45,650
February.....1941	139	128	18,100	438	4,182	136	16,830	5,513	63	7,305	532	747	90	35	231	1,092	82	287	55,900
February.....1940	94	92	13,789	425	4,336	113	11,960	2,638	60	4,931	425	767	4	31	101	371	182	360	40,729
Two Months.....1941	328	283	38,244	885	8,681	261	33,005	14,676	128	14,878	1,206	1,613	171	69	462	2,001	164	587	117,612
Two Months.....1940	237	209	29,786	961	8,681	266	25,242	5,780	116	10,519	997	1,485	15	53	186	793	355	698	86,379
% Change...Two Mos.	+38	+35	+28	-8	-2	+31	+154	+10	+41	+21	+9	+1040	+30	+148	+152	-54	-16	+36

* Includes all Federal Deliveries.

When writing to advertisers please mention Commercial Car Journal

COMMERCIAL CAR JOURNAL
MAY, 1941

Pace Setter

a husky that really
can step out!

U. S. ROYAL FLEET DELIVERY



EXTRA-HEAVY TREAD FOR LONGER WEAR IN GRINDING STOP AND GO SERVICE

This husky has what it takes! Extra-tough tread to resist the constant stops and starts of door-to-door service; extra-tough body to resist the toll-taking heat developed by high-speed runs (under normal loads) both in and out of town.

Ask your U. S. Dealer to show you this pace-setter and tell you how fleet owners use it to cut their tire costs way down.

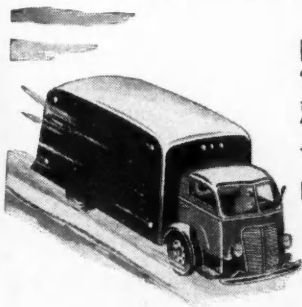
(Rayon construction in No. 22 and up)

DEEPER TREAD

Tough, massive tread of thicker Tempered Rubber wears longer.

BUTTRESSED SIDEWALLS

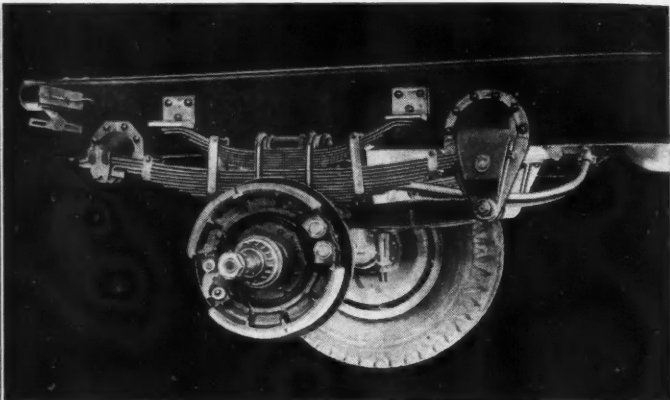
Rugged shoulders are designed to resist curb scuffing, snagging and other tough going.



United States
1230 Sixth Avenue

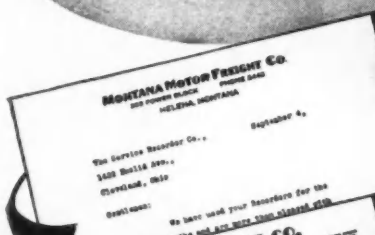


Rubber Company
Rockefeller Center, N. Y.



HOW THEY USE THE SERVIS RECORDER

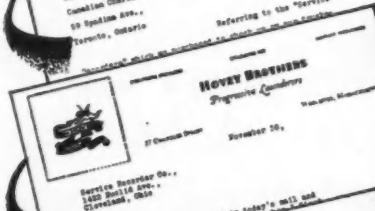
*Here are actual
Examples and
RESULTS*



Motor Freight Company reduces overall time on the road at least 20 per cent.



Distributing company found that 3 hours daily per truck was being wasted.



Recorders on 40 laundry trucks give highest efficiency in management.



Long distance hauler saves almost enough first month to pay for Recorders.



However! You can run trucks without Servis Recorders. Many concerns are losing hundreds of dollars per truck per year that way. • Why not save that money—easily.

Write for free booklet: "Ten Ways of Getting More Work Out of Motor Trucks."

THE SERVICE RECORDER CO.
1375 EUCLID AVENUE CLEVELAND, O.

Recent improvements in Gramm Trailers have brought the weight of the 22,000 lb. (g.v.w.) model illustrated above to 7200 lb.—a full ton under the corresponding model of five years ago. Tires are 9.00/20 and body is 26 ft. Photo of the rear axle assembly shows such salient Gramm features as the I-beam, rubber-insulated torque arm; safety springs with three leaves over the bushing; helper springs, and details of the trailer brake assembly.

FREE BOOKS

(CONTINUED FROM PAGE 17)

duty oil takes a lot of research. Valvoline's new "HPO" oil was no exception, and the story is told in an interesting new booklet. Of special interest are the answers to 17 specific questions on the possibilities of this oil in your fleet. Check "E" on the post card.

Bendix Booklets

Two informative booklets, one on the built-in features of the Stromberg Carburetor, the other on the uses of Bendix Cleaner (a liquid chemical) are offered by Bendix Products Division, South Bend. We singled them out as being better than average sales presentations containing really instructive information. Check "F" on the post card.

Lubricant Data for GM Diesel

If there is a General Motors diesel engine in your fleet you can't help but be interested in a new leaflet prepared by Socony-Vacuum Oil Co. In addition to describing the working principles and important features of the engine, it gives full details of lubricant requirements. A must for GM diesel owners. Check "G" on the post card.

Operating Record Form

A new book containing ruled page forms for each month in the year, on which fleetmen can keep daily records of all fleet expenditures, is offered free of charge by the Dodge Division of Chrysler Corp. Check "H" on the post card.

POST CARD OPPOSITE PAGE 114

UNBEATABLE for FAST Sanding!

For any sanding job — here's the smoothest-working "double-play" combination in any man's league!

SIoux High Speed SANDERS

are designed and built for long dependable heavy duty service. Ball-bearing construction, heat-treated alloy steel gears, permanent lubrication, cyclone fan for increased ventilation, air director guard for protection against dust, patented tool spindle lock for changing discs.

SIoux Phenol Abrasive Discs

not only cut FASTER and with less effort — but they stay "as COOL as a cucumber" even after long punishing service. They're flexible, tough, long-lasting, non-loading — due to the Resin Bond — Tempered Aluminum Oxide grain and moisture proof fibre back.



No. 1250



No. 1250 SIoux 9" Heavy Duty Sander equipped with No. 850 Universal Phenol Disc for 9-inch, 7-inch and 5-inch abrasives. No load speed 5000 R. P. M.

No. 1267 SIoux 7" Heavy Duty Sander equipped with No. 851 Universal Phenol Disc for 7-inch and 5-inch abrasives. No load speed 4250 R. P. M.

YOUR JOBBER SELLS THEM

STANDARD THE
ALBERTSON & CO., INC.



WORLD OVER
SIoux CITY, IOWA, U. S. A.

PROOF THAT P.M. PAYS

(CONTINUED FROM PAGE 27)

age or doubtful equipment can be made easily from the file and the expense of daily posting is eliminated. A sheet showing all equipment with its previous year's average, "Miles Per Gallon" performance is posted on the driver's bulletin board, and a copy is furnished the president of the company. Monthly performance of each unit is posted to this sheet at end of each month. This shows at a

glance what past and present performance is. Monthly graphs also furnish this information in summary form.

You will notice that we have cut statements to a minimum and replaced them with graphs and pencil sheets such as above. We have found that this type of reporting saves considerable time in preparation of data and insures it being put to a useful purpose. Bulky monthly statements too often are buried in the files.

Semi-annual, and annual perform-

ance reports are made showing miles run, gallons of fuel used, miles per gallon of fuel, quarts of oil used, and miles per quart. This information is reported by individual pieces of equipment which are arranged in group order, the group being determined by make, model, type and tonnage. The groups are totaled then summarized by groups and a recapitulation made showing information by total tractors, total trucks, and grand total of fleet.

To supplement the above statements a card file is kept on the Superintendent of Maintenance's desk composed of a card for each piece of powered equipment. Each card shows the same information listed in the above statements and carries two years experience. The left side of card shows performance in graphic form while the right side reports actual figures involved. (See Fig. 4, page 26.) Repairs that should effect performance are written on the face of this graph so that a study of the results can be had at a glance.

The information on these cards are used as a factor in determining condition of equipment and type of scheduled service to apply.

Small stickers are placed on the windshield of each piece of powered equipment monthly, showing miles per gallon of fuel for previous month along with the mileage that we think it should have made. (Fig. 5, pg. 26.) These stickers inform the driver what performance he is obtaining from equipment. This tends to obtain drivers' cooperation and the psychological effect is surprising.

Our shop is equipped with the latest instruments and motor efficiency is checked on schedule. Motor

(TURN TO PAGE 54, PLEASE)

Only Direct Service to
Los Angeles
and Oklahoma City

CAIN'S TRUCK LINES

General Office
616 West First
Pawnee, Neb. 687
Phone 2-2831-7-3896
Oklahoma City, Oklahoma
January 7, 1941


**Kingham Trailer Company,
Louisville, Kentucky.**
Attention: Mr. O. R. Kingham, Sales Manager.

Gentlemen:
Due to the nature of commodities we haul becoming more and more bulky, about three or four months ago it became necessary for us to increase the size of our trailers. Our thought was to try to increase this size and at the same time keep the increase of the weight of equipment to its minimum, and not impair the sturdiness of it too much, as we have a very difficult long haul between Oklahoma City, Oklahoma and Los Angeles, California, taking us through the Rocky Mts.

Among representatives of several of the more popular makes of trailers, we called in your representative, Mr. Roy Pallady of the Pallady Welding & Equipment Co., Okla. City, to give us the specifications of your new Zephyr trailers. After carefully comparing these specifications with other makes, and taking into consideration the service we have received from a Kingham trailer that we have which has been in service since 1932, and two other Kingham trailers we have been using for more than a year, we decided that your new trailers would fit our needs, and purchased three 28 foot and one 32 foot tandem axle, new light-weight zephyrs.

These trailers have been in service for several months between Oklahoma City and Los Angeles, traversing some of the roughest roads there are in the country. They have not given us any trouble and are doing everything you claimed they would do. We do not hesitate to recommend "Kingham" to anyone who contemplates the purchase of good, sturdy trailer equipment.

Yours very truly,
CAIN'S TRUCK LINES
BY *B. Cain*
B. Cain, Owner



KINGHAM TRAILER COMPANY

INCORPORATED

LOUISVILLE, KENTUCKY

MAIL THIS COUPON TODAY!

KINGHAM TRAILER CO., Inc., 15th and Hill Sts., Louisville, Ky.

Gentlemen:—We are interested in your new light-weight Zephyr trailer. () Please send us descriptive folder. () Please have your representative call on us.

Name Company

City State C.C.J.

SOUTHERN CALIFORNIA FREIGHT LINES									
MOTOR TUNE UP									
Truck	Type		Date						
1 2 3 4 5 6 7 8									
Compression									
Valve Setting-Intake				Reset to					
Valve Setting-Exhaust				Reset to					
Motor Timing									
Spark Plugs		Class	Qty	Size	Gap	Reset to			
Distributor Plate Condition				Gap	Distributor-Driven		Gap		
Vacuum	Idle	In.	25 m.p.h.	In.	40 m.p.h.	In.			
Air-Fuel Ratio	Idle	50 m.p.h.		60 m.p.h.					
Overhaul Setting	Low	End	End		High				
Gasoline Pump Pressure				Vacuum					
Carburetor				Choke					
Wiring-Ignition									
Remarks									

FIG. 7

Motor Tune Up Form (See page 54)

HERE'S AMERICA'S
BEST VALUE IN
PISTON RINGS!



YOU SAID IT, BIG BOY,
EVERY RING IS
INDIVIDUALLY
ENGINEERED!



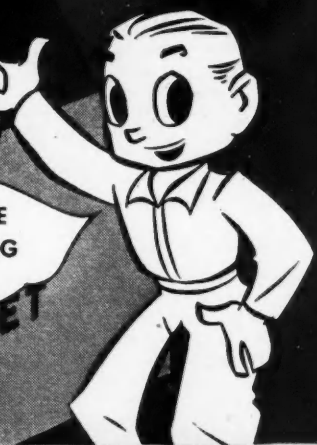
AND EVERY RING IS
TREATED WITH FRICTION-
REDUCING, SCUFF-
RESISTING GRANOSEAL!

SEALED
Individually
Engineered

POWER
Engineered

THESE SETS SURE
END OIL PUMPING
IN A HURRY!

RING SET



SEALED POWER
Individually Engineered
PISTON RING SETS

(CONTINUED FROM PAGE 52)
diagnosis is speeded up by use of instruments and considerable waste time is eliminated. In this connection I will say that one extremely efficient motor tune-up man is worth his weight in gold.

Motors that are losing efficiency are tuned up immediately and not delayed until scheduled time. The Motor Tune-up Form (Fig. 7, pg. 52) is filled out and this in turn is posted to Motor Tune-up Ledger which has a sheet for each piece of equipment.

(See Fig. 8.) This ledger furnishes at a glance, what was found and done on each previous tune-up.

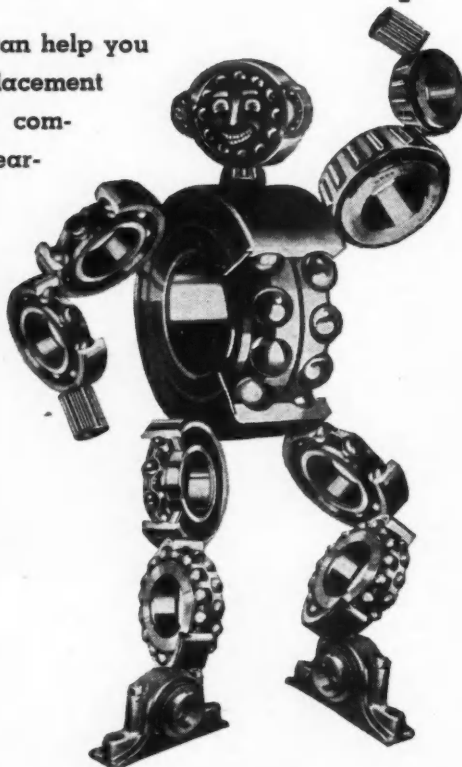
It is generally agreed that truck performance will go up as the number of drivers handling a single piece of equipment diminishes. Our studies have more than proved this contention to our satisfaction and I don't believe its importance can be overstressed.

Driver education is another large factor and efforts in this direction have paid dividends although our

"In Your Ahlberg Jobber Place Your TRUST
For Bearings—ROLLER, BALL and THRUST"

YOUR AHLBERG JOBBER can help you keep down the bearing replacement costs of your fleet—through complete and convenient "All-Bearing" service. It includes **CJB** Master Ball Bearings, Bower Tapered Roller Bearings (famed for "Super-Finish"—no run-in), and Thrust Bearings. And it is backed up by the 30 Ahlberg Warehouse Branches in strategic centers.

Here's a bearing service especially for you: it saves time and effort and assures correct replacement — gives you every ball, roller or thrust bearing you need when you need it. Try it.

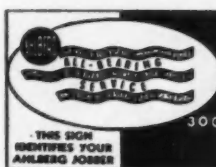


Write us for your
Ahlberg Jobber's name.



TRUCK BEARING WASHER: Wash big ball and roller bearings quickly, thoroughly with this Croft-built Washer. Gun forces cleaning fluid in container all through bearing. Washer, also Packer, distributed by Your Ahlberg Jobber.

And Remember: Ahlberg Ground Ball Bearings save you an extra 40% when you take advantage of your Jobber's Exchange Plan.



Ahlberg Bearing Company

Manufacturers of **CJB** Master Ball Bearings
3006 WEST 47TH STREET — CHICAGO — 30 WAREHOUSE BRANCHES
Out West at PRECISION BEARINGS, INC. Los Angeles

FIG. 8

Make and Type _____ Truck No. _____

Motor Tune Up Ledger

progress on this score has been small in comparison to its importance.

Labor

We use the time clock and card system to account for shop labor. Two types of cards are filled out by mechanics each day.

- A. Master Cards.
- B. Detail Cards.

The master card reports total hours worked during day and serves for payroll purposes.

A detail card is made for each job, showing equipment number, mechanic's name, date, and work done. Detail cards must total to Master Cards.

Detail cards are not posted to cost records daily, but are filed in equipment number order where they are readily accessible. At the end of the month cards charged to each piece of equipment are sorted between Body and Chassis work and posted as a total to summary cost sheet.

The above procedure saves considerable posting time and practically no loss of information is incurred by reason of accessibility of card files.

The preventive maintenance history sheet gives us a daily check as to what work has been done (this will be described later on) and daily detail of labor therefore is not necessary unless a detailed study is to be

(TURN TO PAGE 56, PLEASE)

How a Shop Screwball Got Himself in the Groove

1 Yeah, the screwball was me. This outfit buys every size and make of rig on the market. Brake materials — I'm buying hit or miss to try to fit all my units. Mileage and cost records? Hopeless!



2 To make things more screwy, my buying is scattered. I've got to listen to every salesman that comes in. That takes so much time I don't know how I ever had a chance to run the shop.



3 One day I hear a guy say something about American Brakeblok's 3 types of heavy-duty brake linings—a type each for manual, vacuum-booster and air brakes. He tells me about their Advisory Service.



4 We send a form he has to American Brakeblok about our equipment, type of brakes, loads, routes, operating conditions. Back comes recommendations from engineers for every one of our units.



5 I advise anybody working with brakes to write American Brakeblok. It's almost peaceful around our place now. Sales calls are down. Costs are down—and tell a knock-out story—so knock-out that the Boss and I often find time to watch the home team knock out a home run.

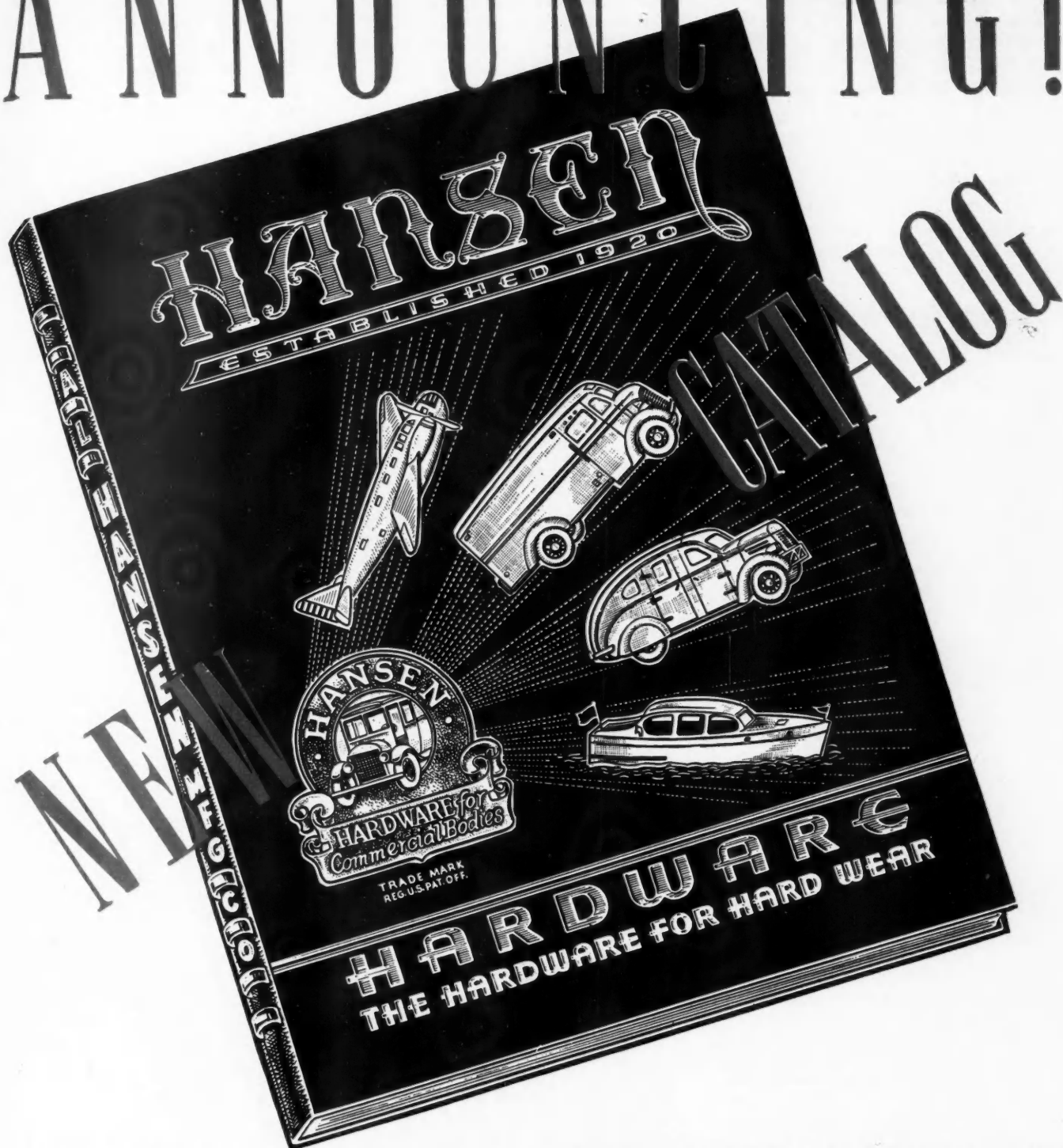
Copyright, 1941, The American Brake Shoe & Foundry Co.



Master Stocks in 38 NAPA Warehouses. Jobbers everywhere give prompt service.

American Brakeblok Division of The American Brake Shoe & Foundry Co., Detroit, Michigan

ANNOUNCING!



NEW—just off the press—more complete than ever before—streamlined to reflect its contents—this Hansen catalog is now ready. Contains an extensive line of modern commercial body hardware—with *many new products added!* New locks with locking devices—new slamming and slam-and-take-up locks—new rear-door, new sliding door, new cab and extension locks—new handles.

Easy, ready reference—alphabetical and numerical index—Cercla spiral binding to permit opening flat—attractive green cover embossed in silver and gold—are among its features. If you have not received a copy, send for yours.

A. L. HANSEN MFG. CO.
5047 RAVENSWOOD AVE.
CHICAGO, ILL.

SEND FOR YOUR COPY—JUST OFF THE PRESS!

(CONTINUED FROM PAGE 56)

addition valves are ground, piston rings replaced, pan dropped and bearings checked.

"D" Service combines items listed in "A," "B" and "C" services. In addition clutch, transmission and rear end are torn down and inspected. Parts are replaced as needed.

"E" Service differs from the "D" service in that motor is rebuilt, including rebore, align ream bearings, etc., shackles rebushed, body completely gone over; painted if necessary.

Scheduling Services

We have found that minor checks can be scheduled on a mileage basis for high mileage line equipment, and on a combination time and mileage basis for low mileage pickup and delivery equipment.

Gasoline powered line equipment is scheduled for "A" service each 1500 miles.

Diesel powered line equipment is scheduled for "A" service each 2000 miles.

The above schedule is used because

experience shows that more frequent checks would not raise our efficiency and would raise our shop costs, while less frequent scheduled service would cause more shop calls between scheduled services and thus raise costs and lower efficiency.

Delivery equipment is given "A" service once each 60 days or 1000 miles whichever comes first.

"B" services are scheduled on a straight mileage basis of 10,000 miles.

It has been our experience that major services cannot be based on a set mileage basis because of the following variables, listed in the order of their importance.

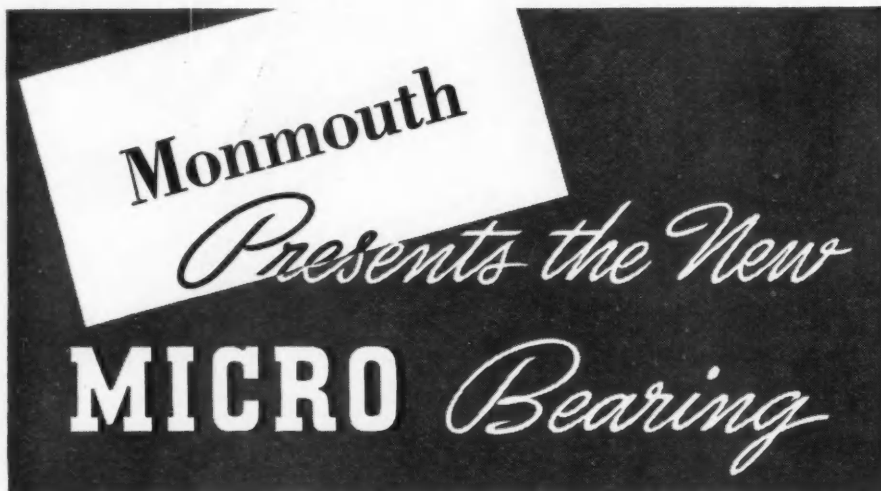
1. Driver.
2. Load conditions.
3. Route and terrain.

We use our fuel and oil performance as a guide as to condition of equipment along with a study of driver reports, preventive maintenance history sheet, tune-up ledger, instrument checks of motor, and mileage run since last major service. From this information we decide when and what type of major service is necessary.

P. M. History Sheet

The Preventive Maintenance History Sheet (Figs. 6 and 6A, page 27) gives a daily picture of exactly what shop work has been done. A sheet is assigned to each piece of equipment and each time a unit is worked on by the shop a record is made on this Form showing date, speedometer reading, work done, and mechanic doing work.

Inasmuch as the space for reporting is necessarily limited we use a code to show what work has been done. For instance "R" when used as the first character in a group, means repair or reline, "RE" means to replace, "A" adjust, and "Z" to clean. The second character in the group is a number and designates the approximate part effected. For example "1" stands for front axle assembly, "2" rear axle assembly, "3" body and cab, "4" brakes, "5" clutch, "6" cooling system, "7" electrical, and "8" engine, etc. Any character following the numeral designates the actual part worked on. Such as "RE7B" decoded means to replace distributor, "A4BC" is to adjust front and rear brakes. The letter "B" following the numeral "4" means front (TURN TO PAGE 60, PLEASE)



FROM the same engineers who produced the first steel-backed, insert-type engine bearings, comes the new MICRO Bearing—

- a triumph of bearing research and precision production
- another great advance in bearing life and performance

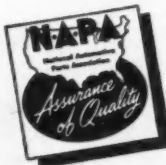
The Monmouth MICRO Bearing is the same bearing so widely used as original equipment in the new 1941 cars and trucks—gives double the fatigue life of heavier babbitted bearings.

Now available from Monmouth, through NAPA Warehouses and associated jobbers for motors in which it is being used as original equipment. For engine bearings—*Monmouth is the Name!*

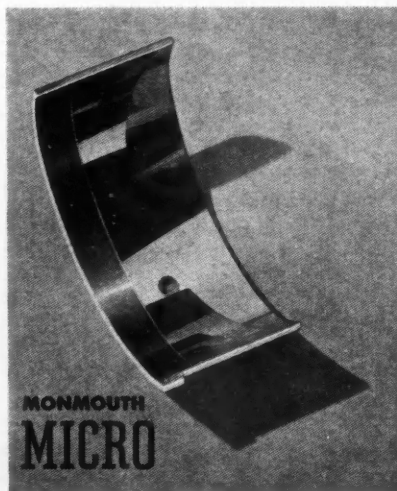
MONMOUTH PRODUCTS COMPANY, CLEVELAND, OHIO, U. S. A.
ENGINE BEARINGS • CLUTCH PLATES AND CLUTCH PARTS • KING BOLT SETS

The bearing metal on the Monmouth MICRO Bearing shown here has been cut away from the steel back to attempt to show the thin babbit lining—only .003 to .005 inch thick, as compared to .012 to .015 thickness in the conventional insert type bearing.

Overall thickness is the same as in the conventional bearing, a heavier steel strip being used to back up the babbit lining. Steel is of premium quality, held to a tolerance of .0005 inch on thickness.



Master stocks of Monmouth Engine Bearings are maintained in NAPA Warehouses from coast to coast, assisting hundreds of jobbers in every section of the country to give prompt service even on rarely called-for numbers.



Tough ... BUT OH SO GENTLE

TOUGH ON OIL-PUMPING
GENTLE ON CYLINDER WALLS

• You fleet men demand performance . . . and get it. For example here's the experience of a California fleet operator:

"...in looking over some of our records, I was amazed to note the long service and small amount of cylinder wear we get with Hastings Steel-Vent Rings . . . We put Steel-Vents in our No. 14 truck at 34,000 miles and the job ran for another 56,000 miles with only .007 additional wear . . .!"*

This is only typical of many other letters in our files and the chances are you'll write one just like it when you swing over to Hastings Steel-Vent Piston Rings.

* Name on request.

HASTINGS MANUFACTURING CO. • HASTINGS, MICHIGAN
Piston Rings • Piston Expanders • Valv-Rings

Says Pete De Paolo: "Stopping oil-pumping is only half the job of a piston ring—the other half is checking cylinder wear."



Stan Elman

HASTINGS

STEEL-VENT PISTON RINGS

U. S. Patent Nos. 2,148,997, 2,175,409

Stop Oil-Pumping • Check Cylinder Wear

(CONTINUED FROM PAGE 58)
brakes, while the letter "C" stands for rear brakes.

The Preventive Maintenance History Sheet is posted from shop reports and scheduled preventive maintenance sheets.

Preventive Maintenance services are scheduled a month in advance. This schedule is made up on a work sheet so that as few pieces of similar equipment as possible are called into the shop at one time. This is done so that the Operating Department will

not be crippled by several like units being out of service at one time.

In making up schedule we consider monthly mileage run by the unit and what repairs have been necessary since last scheduled service.

In cases where it is necessary to bring a unit into the shop between scheduled services, we check to see when it is next due for service, and if that time is near we complete a scheduled service then.

The Operating Department is fur-

nished with a copy of the above schedule for their guidance.

It is a fact that shop expense bears a direct relation to the number of times equipment visits the shop. For this reason our study is directed toward spacing our scheduled services as far apart as can be done without increasing the in-between calls or involving possibility of break downs.

The back side of Preventive Maintenance History Sheet is set up so that a summary of major services ("C" or better) can be made, showing date and speedometer reading. This summary is made so that the exact status of any particular unit may be learned at a glance.

The lower portion of the back side of the history sheet is divided into four sections as follows:

1. Motor, Carburetor and Ignition.
2. Transmission and Drive Line.
3. Rear End.
4. Wheels and Brakes.

Major repairs, important replaced parts, various sizes such as bearings, piston rings, and bore, etc., are recorded in proper section, reporting date and speedometer reading when work was done. This portion of the sheet comes in very handy when parts are forwarded to other company stations and also to enable us to provide correct parts for road repairs.

In brief the Preventive Maintenance History Sheet will quickly furnish the following information.

- a. Number of shop calls between scheduled services.
- b. Miles averaged between shop visits.
- c. Number of, and miles between, scheduled services.
- d. Mechanic responsible for work.
- e. Number of repeat shop calls.
- f. Date and speedometer reading of any repair.
- g. Size and make of various parts and date and speedometer reading when they were placed in service.

Any plan, to be a success, must be adhered to. Deviations from the basic procedure will cripple if not destroy the working efficiency of it. For this reason, when a plan of procedure is decided upon it must be closely followed and not executed in a half-hearted manner.

In conclusion I wish to say that what success we have had with this system is the result of, cooperative department heads, team work between departments, and a determination to put statistical data to practical use.

END

(Please resume your reading on p. 28)



LINK-BELT ROLLER BEARINGS Provide Long Lasting Smoothness!



The exclusive convex-concave roller principle of Link-Belt Shafer Roller Bearings offers truck and bus operators many performance extras that are not found in ordinary bearings. They run smoother and last longer because the basic design of these bearings provides compensation for wear. Ask your jobber to explain this—you'll discover something that will help you put many more miles of top performance into every bus or truck in which you replace front wheel, differential or rear axle bearings. If your jobber doesn't carry Link-Belt Shafer Roller Bearings—write us for the name of one near you who does!

LINK-BELT COMPANY

519 N. Holmes Ave., Indianapolis, Indiana
Warehouses in all principal trading centers
Made by the makers of the famous
Silverstreak Silent Timing Chain!

8507A

LINK-BELT
SHAFER
ROLLER BEARINGS



TACHOGRAPH CHART tells all!



New RECORDING SPEEDOMETER
provides automatic GRAPHIC LOG
of SPEED, TIME and DISTANCE

Illustration at right shows Tachograph which replaces original speedometer on truck. Speedometer, clock and warning light are visible for the driver's convenience. The Tachograph chart is locked inside the instrument.

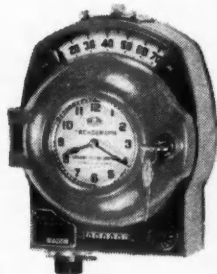
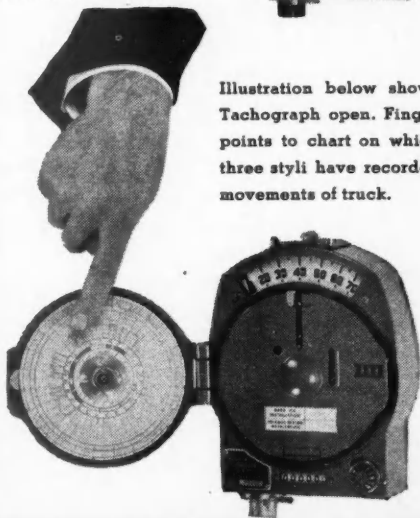


Illustration below shows Tachograph open. Finger points to chart on which three styli have recorded movements of truck.



LOWER YOUR HAULING COSTS by equipping each of your trucks with a **SANGAMO TACHOGRAPH**

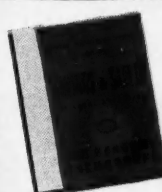
If you could sit next to the driver and make notes on the speed, stops, how long the truck was tied up at any place—in fact, on its every move during the trip—wouldn't you be able to point the way to greater operating economy, to savings in time, and to new safety records? And wouldn't you be in a better position to direct your employees and support them when the records prove that your employees meet factors beyond their control?

Astounding as it sounds, you can do just that—yet remain at your desk! Through the chart made by the Sangamo Tachograph you will learn as much of the truck's operation as though you were the driver. You will know all the facts of the truck's daily operation.

Join the fleet operators who are now deriving the benefits from hundreds of Tachographs already in service.

Get complete information on what the Tachograph can do for YOU. This silent supervisor will quickly pay for itself out of savings in truck operating cost. Manufactured by Sangamo Electric Company, and distributed exclusively by the Wagner Electric Corporation.

Clip and Mail Coupon for Details



AUTOMOTIVE PARTS DIVISION
Wagner Electric Corporation

6470 Plymouth Ave., St. Louis, Mo., U. S. A.

☐ Please send a copy of "Savings & Safety."
☐ Have your nearest branch call on us regarding the Tachograph.

Name and Position _____

Company _____

Address _____

We operate _____ trucks.

S41-2
CCJ

SHOP HITS FROM LITS

(CONTINUED FROM PAGE 35)

and repainted and kept as reserve units used only in the Christmas rush, during special sales, or occasionally as fill-ins for regular units temporarily out of service.

The second move for greater efficiency was the creation, first on the drafting board, then as a scale model, and finally in reality, of the company's new warehouse garage which

is an entire city block long and about 300 ft. wide. A description of this building's unusual features, including its thousands of feet of conveyor systems, its railroad siding and its almost unlimited facilities for the warehousing of every kind of merchandise is outside the realm of this article, though none the less fascinating. But that part of the building which houses the truck fleet and its various maintenance facilities is a very real part of the story of Lit Brothers delivery operations.

A 20-ft. ramp with a 60 sq. ft. turning area at its lower end provides vehicular entrance to the lower floor connecting directly with a 46-ft. wide unobstructed inside driveway which leads first to the incoming motor freight dock, then past the long line of furniture loading bins and finally to the maintenance department with its machine shop, paint shop, lubrication section and stock room. Although this lower floor is below street levels it is at ground level on the sides of the building so that air and light is excellent.

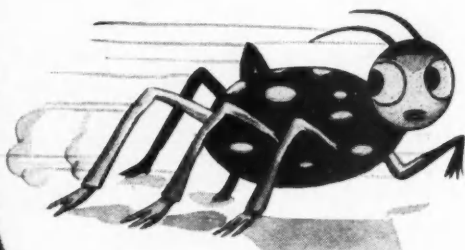
Directly above the lower driveway is a second 46-ft. wide driveway leading past a block-long row of package delivery bins. This provides loading and storage space for 46 of the package delivery trucks, and a third driveway on the opposite side of the same floor provides similar accommodations for 42 more. The reserve cars are stored along the outer edges of these driveways, at convenient intervals.

Savings in fender dents and bad tempers through the total elimination of posts in the driveways are at once apparent though the structural problems involved were not easy. Girders of even 46-ft. length could be supplied to support the second floor driveways but similar girders capable of supporting the warehouse loads of upper floors could not be furnished. The solution was a bridge-type truss system mounted in the third floor. These trusses extend all the way to the third floor ceiling forming frame work partitions, in effect. The storage of merchandise can be arranged between the structures with virtually no loss of space or convenience.

The distance from the upper driveways, which have direct access to the street level, to the shop, which is on the far end of the lower floor, is a long run. So the maintenance program was set up to necessitate the trip at as infrequent intervals as possible. The simple expedient of doing all the minor service work right in the driveways provides the solution and at the same time greatly reduces congestion at the shop.

To begin with there is a gas pump located on each of the driveways. Each of these pumps is housed in a fireproof structure provided with an exhaust fan which goes on automatically when the pump is turned on.

(TURN TO PAGE 64, PLEASE)



*Spiders keep
out of*
**Bendix Drive
Parts
Cabinets**

...stocks move too fast!

YOUR stock of genuine Bendix Drive parts and renewal units is *always live!* Potential customers are numbered, not in dozens or hundreds, but in *thousands... in millions* all over the world!

Whether your automotive parts business is of distributor or dealer character, the fact that Bendix Drive parts seldom know obsolescence means positive, steady profit insurance for you.

No other make can approach in sureness of sale and satisfaction, the genuine Bendix Drive and parts... made only by this company since the early days of the motor car.

**Millions and
millions of
customers!**

ECLIPSE MACHINE DIVISION
Bendix Aviation Corporation • Elmira, New York

BENDIX DRIVE

Drafted for Action!



M-7.3

DE-11

Two Veterans of Years of Service Called Back By Popular Demand!

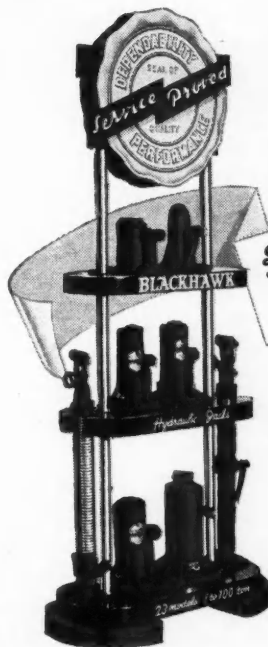
M-7.3 (5-Ton) and DE-11 (12-Ton)

That's right! We put these two rugged lifter-uppers in the "Reserve Corps" — but since trucks and buses are being built so close to the ground—well, we had to draft 'em again.

So here they are — **SERVICE-PROVED** — just what the doctor ordered for those low-slung, streamlined jobs. The M-7.3, with telescopic **DOUBLE** lift, is perfect for trucks and buses. Its extremely low height (only 7-5/16") will get under anything on wheels.

The DE-11 will lift any heavy truck, bus or trailer. Equipped with screw extension, giving it that extra 3 1/2" lift, so often needed on those tricky high axle jobs. Both jacks have *proved* Blackhawk dependability. Only Blackhawks have the Service-Proved seal that guarantees more-for-your-money value. Order from your Jobber Salesman today.

A Product of **BLACKHAWK MFG. CO.**
Department J1151 **MILWAUKEE, WIS.**



BLACKHAWK

(CONTINUED FROM PAGE 62)
(See Fig. 2, page 34.) Gasoline is stored in three 1000-gal. underground tanks located just outside the building, and even though the gas can be dispensed from four different pumps, the construction is such that the insurance rate on the whole building is less than that of any other warehouse in the city, according to company officials.

Then each of the driveways is piped with hot and cold running water as well as an air line, and out-

lets for all three are provided at 35-ft. intervals. Washing is done right in the driveway. Two men on the night shift are assigned to this job and it is only necessary for them to move each truck forward from its stall enough to clear adjacent units. Soft fountain-type brushes attached to the end of the hoses and furnished with long handles, cut down washing time and eliminate the need of ladders. Soap, which is used only on the chassis and under-body surfaces, is mixed right in the shop. The formula

includes a base of soap chips and carbon tetrachloride plus various other ingredients, but no lye or caustic soda is used.

Working continuously throughout their time on duty, the washers follow no ironclad routine. They pick the dirtiest trucks first and handle from 12 to 20 trucks a night. They keep a record of each truck washed, however, and see to it that no truck is neglected beyond a reasonable length of time. On the average, each active truck is washed at least once a week and many more often.

Hot water incidentally is provided by the incinerator with pipes also connected to the heating system in case the supply of unusable rubbish should run too low.

A small business coupe (See Fig. 5, page 35), its rear deck fitted with special carrier compartments for batteries, tires, chains, a can of oil and tools, provides the remaining link in the chain of decentralized service routine. For in addition to serving as a road emergency car (trucks carry no spare tires) the coupe runs most of its mileage at night shuttling men and equipment to various locations throughout the building where minor jobs are performed on the spot.

These operations include tire changes, battery installations, minor adjustments, including brakes, light maintenance, and a long list of miscellaneous quick repairs. Two small portable tool lockers (See Fig. 4, page 35), fitted with locking doors, casters and a convenient electric plug-in outlet and cord, supplement the service car in making remote repairs easier.

A flashing red light on the roof of the coupe, as well as on the company's larger wrecking car, provides unmistakable protection when either is called upon for night road service work.

Routine maintenance centers around a driver's "Inspection and Defect Report" form in lieu of fixed inspection periods. A sample is reproduced on page 67. Each night as the driver checks out he is privileged to make use of this written report to indicate any defect whatsoever that he may have noticed about his truck. Since each driver is assigned to a particular truck he is held responsible for its mechanical

(TURN TO PAGE 67, PLEASE)

CAN'T MAKE THE BIG HILL

... AND WHAT CAN I DO NEXT?



Easy Joe!

HAVE THE BO\$\$

LET YOU TRY AN

AUTOPUL\$E

<p style="text-align: center; font-weight: bold;">\$O HOT IT BOIL\$</p> <p>Engine-mounted pumps get hot. This and suction-pumping cause vapor lock—and big hills or long drags stop you, and that hurts.</p>  <p>BUT you mount AUTOPUL\$E in a cool spot. It pushes the fuel stream, solid and vapor-free. Fuel feed troubles disappear. Runs are "on time" again.</p>	<p style="text-align: center; font-weight: bold;">AND WHAT WASTE</p> <p>Besides vapor-locking, hot camshaft pumps also cause 10% of highest-test fuel-ends to boil off and vent out carburetor.</p>  <p>One tenth your fuel bill total waste. Stop this with Autopulse.</p>
<p style="text-align: center; font-weight: bold;">PUMP\$ COOL FUEL</p> <p>Camshaft pumps must mount on hot motor and must pump by suction. They cost plenty for you—in time, money, delays.</p>  <p>AUTOPUL\$E mounts back near gas tank, never gets hot, never heats fuel, and saves money every mile run.</p>	<p style="text-align: center; font-weight: bold;">\$START \$AVING\$ NOW</p> <p>Stop waste today! Why let LO\$\$ continue? Get rid of trouble. Many A-1 operators have done so with AUTOPUL\$E. Have your jobber tell you of our change-over plan, or write direct.</p> <p style="text-align: center; font-weight: bold; transform: rotate(-5deg);">CUT OUT AND MAIL THE COUPON TODAY!</p>

AUTOPUL\$E CORPORATION, Detroit, Mich.

Please send complete information about AUTOPUL\$E PUMP\$

Name _____ Street _____

City _____ State _____

(CONTINUED FROM PAGE 64)

condition at least in so far as notifying the shop of any indication of trouble.

The printed form then becomes the "work" ticket, upon which the mechanics act at once to correct the trouble. If the difficulty cannot be remedied on the floor, the truck is, of course, routed to the shop for further repairs.

The long employment record of the average Lit Brothers driver plays a vital part in this trouble-detecting routine. The plan might work out much less satisfactorily if it were not for the fact that drivers, through long experience and familiarity with their individual trucks, have learned to spot troubles with such speed and accuracy that a formal preventive maintenance routine by the shop men has not been necessary.

Even so, company officials point out that a system of periodic inspections is on the way.

As a further aid to efficient maintenance one of the three day-time mechanics is habitually on the drive-ways during the morning hours. Trucks depart at intervals that range all the way from 8 o'clock till noon, and this trouble-shooter's job is to be on hand for last-minute adjustments. When not otherwise engaged the mechanic spends his time on routine check-ups along the line.

There is no set mileage mark at which each truck is lubricated for both weather and operating conditions are taken into consideration. It has been found, for instance, that trucks habitually running in the sandy regions of southern New Jersey need considerably more attention than those that run exclusively on surfaced suburban roads.

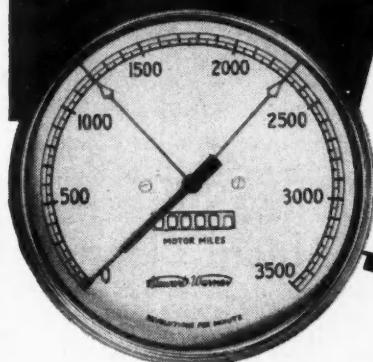
A single mechanic working on the night shift handles all the lubrication. Each night as he reports for duty he and the shop superintendent decide which trucks shall be greased that night. Trucks which have gone the longest mileage since last lubrication form the normal backlog, but trucks which have been operating under severe conditions, or trucks against which driver reports indicate need for special attention are also routed to the modern twin-post lift in the lubricating alcove. The normal lubrication period varies from 500 to 1000 miles.

(TURN TO PAGE 68, PLEASE)

LIT BROTHERS PHILADELPHIA, PA. AUTOMOTIVE INSPECTION AND DEFECT REPORT 18847					
VEHICLE NO. _____		DATE _____ 193__			
DEPT. _____		MAKE _____		SPEEDOMETER _____	
DEFECTS NOTED—(CHECK BELOW)					
MOTOR	CLUTCH	STARTER	REAR AXLE	TANKS	
HEATS	GEARS	STICKS	RODST	VALVES STICK	
SHOCKS	SLIPS	DOES NOT WORK	LEAKS OIL	FAUCETS STICK	
STARTS HARD	WHEEY			FAUCETS LEAK	
NO POWER	STEERING	TRANSMISSION	BRAKES	GAL. PER MIN.	
LEAKS OIL	HARD	BROWLS	O. K.	STATIC FITTINGS	
LEAKS GAS	SHIRTY	LEAKS OIL	POOR		
GAS: RULES FOR GAL.	LIGHT	TIRES	FENDERS	MISC.	
WATER PUMP LEAKS	HEAD	PRESSURE	FRONT	DOORS	
RADIATOR LEAKS	TAIL	CUTS	REAR	DOOR HANDLES	
	DASH		WHEELS LOOSE	WINDSHIELD	
				WINDSHIELD WIPER	
				BIRD CHAINS	
REMARKS: _____					
DRIVER _____		SERVICED BY _____		CHECKED BY _____	
ACCEPTED BY _____		GARAGE NO. _____		LOCATION _____	
P 42-BSC		GARS WILL NOT BE CONSIDERED IN FOR SERVICE UNLESS THIS REPORT IS SUBMITTED			
		©12974			

**DRIVERS LIKE TO KNOW
THE POWER & ECONOMY
RANGE OF TRUCKS...
AND THERE'S ONLY ONE WAY!**

STEWART-WARNER MOTOR MILE TACHOMETER



**...NOW YOU CAN SERVICE
TRUCKS on a basis of
actual "MOTOR MILES"
instead of haphazard
"ROAD MILES"**

TRUCK drivers are people. They take pride in their work. Increased efficiency, better gas mileage, lower maintenance costs—these are all a matter of pride to them. That's why drivers like the Stewart-Warner Motor Mile Tachometer, which keeps them aware of the power and economy range of their trucks—and makes it easy for them to stay within that range!

Startling savings are reported by fleet owners as a direct result of using Stewart-

Warner Motor Mile Tachometers. As much as 25% savings in gas and oil—and as much as 25% reduction in repair bills!

Learn more about this amazing instrument, which records r.p.m. in "motor miles"—making it possible for your trucks to be serviced on a basis of actual engine operation rather than haphazard "road miles." Get the facts about big savings others have made. Mail the coupon NOW!

STEWART WARNER MOTOR MILE TACHOMETER

STEWART-WARNER CORPORATION
1876 Diversey Parkway • Chicago, Ill.

STEWART-WARNER CORPORATION
1876 Diversey Parkway, Chicago, Ill.

We operate..... Trucks. Please tell us how Stewart-Warner Motor Mile Tachometers can help us reduce costs.

Name.....

Address.....

City.....State.....

Firm Name.....

(CONTINUED FROM PAGE 67)

Oil level is checked and replenished at frequent intervals, changed when dirty. The recommendation of a testing laboratory to which samples are submitted every few thousand miles, aids in checking oil condition.

The main shop boasts equipment necessary to handle almost any type of repair or maintenance need. There is an unusually large lathe, capable of handling any machining operation from the smallest tooling job to reconditioning brake drums. The latter

is always done at brake relining periods if wear indicates the need. There is a valve refacer, several drill presses, a brake riveting machine, an arbor press, a wheel gage, headlight testing equipment, a tire mounting jig, an electric grinder and an acetylene welding outfit. In addition, there is a complete wood working shop including planer, band saw, rip saw and various hand tools so that necessary body repairs can be made there including all but the most severe accident cases. Exhaust pipe attachments

coupled to an overhead exhausting duct and fan are provided at convenient intervals so that gases from engines undergoing tune-up or other servicing can be carried off without odor.

Adjacent to the garage shop but completely insulated by a fireproof wall is the paint room. Big enough to house as many as ten trucks if need arose, this room is fitted with a still more powerful exhausting fan for carrying off fumes. A hood is provided at one corner under which small articles are painted. (See Fig. 1, page 34.) A unique feature of the arrangement is that when spraying body interiors, the truck is backed into position near the hood of the exhausting system and the suction created is so powerful as to carry off all obnoxious fumes, even from within the close quarters of the body. One painter handles the routine of touch-up work for the fleet, and an occasional complete repaint or revarnish job. A coat of clear varnish is used over all lettering, striping and the company's coat of arms which is affixed to each vehicle. A roll-top cabinet salvaged from the store's sales department affords a dust tight container for spray guns and equipment. When other painters are needed for more extensive repainting as the fleet grows older, there is room and equipment for an expanded staff.

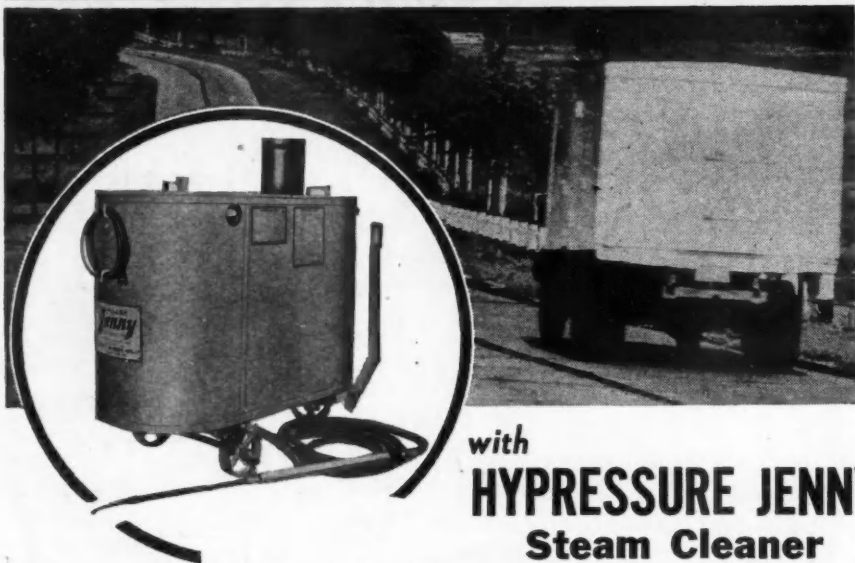
Next beyond the paint room, also separated by a fireproof wall, is a smaller paint storage room. This storage room also serves the furniture paint room which is just beyond it on the opposite side.

Near the truck shop, there is an adequate stock room from which parts are requisitioned on written forms. Included are reserve supplies of ignition parts, carburetors, fuel pumps, steering knuckles, lamps, bulbs and lenses, turn signals, an adequate assortment of nuts, bolts, washers and cotter pins, gaskets, and various other frequently needed parts.

Only two tire sizes are needed for the entire fleet so that the tire stock can be kept at a fairly low level. Tires, by the way, are always retreaded if acceptable for such treatment by the retreaders and records indicate retread mileage almost as good as the new tires.

Inside the stock room a numbered compartment is set aside to house the
(TURN TO PAGE 70, PLEASE)

PUT 'EM BACK TO WORK FASTER... KEEP 'EM ON THE ROAD LONGER!



with HYPPRESSURE JENNY Steam Cleaner

Today's vital transportation needs depend on the ability of your trucks to roll under full load without failure and with minimum out-of-service time. To get 'em back to work FAST and keep 'em rolling longer, depend on Hypressure Jenny Steam Cleaner. When JENNY is made the key-stone of your repairing, reconditioning and cleaning program, it shortens lay-up time as much as 50%, quickly removes dirt that may add as much as 400 lbs. of

deadweight if allowed to accumulate, saves 25 to 40% in fleet maintenance costs. In addition, this original and fully patented steam cleaner saves still more dollars in floor, runway, and pit cleaning, wall and window washing, parts cleaning and similar uses. Answer the questions below and we'll send you, without obligation, a survey that will tell you what Hypressure Jenny can do for you and save for you.

MAIL
TODAY

HOMESTEAD VALVE MFG. CO.
P. O. BOX 90, CORAOPOLIS, PA.

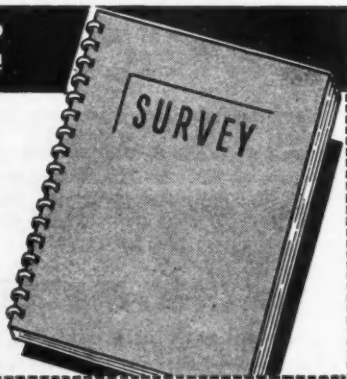
CLIPPING A COUPON LIKE THIS SAVED
ONE FLEET OWNER \$3400 ANNUALLY!

Go ahead—tell us how much JENNY can save us.

We employ.....mechanics on dirty greasy repair work. We
repair.....trucks monthly. We repaint.....trucks monthly.
We clean.....sq. ft. of garage floors monthly. We want
to clean.....

NAME.....

ADDRESS.....



When writing to advertisers please mention Commercial Car Journal

COMMERCIAL CAR JOURNAL
MAY, 1941

STATE LAWS CAN'T STOP ENEMY TANKS



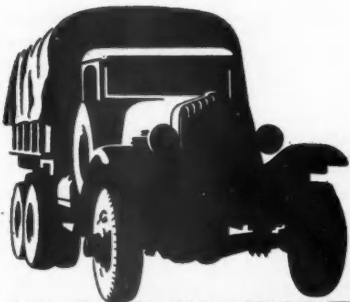
Our confusing interstate trade barriers can play merry hell with our national defense program, but they can never stop an enemy tank. That is something for the legislators of the various states to ponder in these parlous times. Isn't it high time we got together to nationalize and rationalize all state laws governing traffic on main highways?

Take the matter of six-wheel trucks, for example. The Army, after exhaustive tests, shows a definite preference for the single unit six-wheeler in its program for mechanization. Fleet owners know that, from an engineering and economic standpoint, six-wheelers have many advantages over other types of vehicles. The Federal Government, after thorough tests, demonstrated that the single unit six-wheeler is easier on the highway than any other type of trucking vehicle, showing substantially less impact under load. The L.C.C. and Insurance Companies acknowledge their superior safety record. So what? *So not one state allows the six-wheeler more than gross weight parity with multi-unit trucks.* And some states, including important ones like the key state of Ohio, even impose lower limits on six-wheelers. Fleet Owners, why not put the truth of this important matter before your state legislators for immediate action in the interests of national defense, safety and plain horse sense?

THE TRUCKTOR CORPORATION

156 Wilson Avenue

Newark, N. J.



Trucktor THIRD AXLES

CONTINUED FROM PAGE 68)
chains of each truck in the fleet. These are drawn on call and before they are returned to their storage place each is examined for wear. If new cross links are needed, they are fitted by means of a special foot-operated bench jig which opens and closes the links with a minimum of time and effort. Chains being repaired are thrown over an old tire which is mounted in a vise. This provides a convenient working position for both inspection and repairs, the chain

being fed from the tire to the jig link by link.

Batteries receive special attention at Lit Brothers and for a special reason. Most of the trucks operate through most of the year during day-light hours exclusively and battery problems are limited to normal failures. The exception is during November and December when active and reserve units alike are busy until the late evening hours and battery loads are excessive. But since the rush period is so relatively short, it has

not been found practical to equip most of the trucks with high-output generators or elaborate regulators.

Two battery chargers, each capable of handling 25 batteries at a time provide the solution. (See Fig. 6, page 35.) Although water level is checked weekly throughout the year, the driver is again relied upon as trouble spotter in lieu of periodic testing. At the slightest sign of weakness the battery is replaced with a spare, cleaned, tested and put on the special charging rack. Again the coupe provides the transportation means. At the charger, batteries are mounted end to end on a long shelf fitted with a lead pan base, so designed as to drain to a single lead pipe under which an old battery case is kept. Any spillage is thus drained into the old case without damage to any equipment.

A simple device which has saved much battery drain and at the same time provided far better working conditions is a small lamp with reflector at the end of each loading bin on the delivery platforms. These lamps are so mounted as to shine directly into the interior of the truck, eliminating any need of using the truck's own electrical equipment during the loading period.

In addition to superintendent C. A. Simons, the fleet has a total of three day mechanics, two night mechanics (including the lubrication man) and a painter. Together they handle virtually all maintenance needs even to the complete rebuilding of the reserve cars including both chassis (less engine boring) and bodies. Doors and windshields for these older models have been constructed by the shop.

A fleet-owned wrecker completes the equipment picture, and with the coupe handles all road service calls. Trucks so badly damaged by wrecks that the shop cannot handle all repairs have been unknown in recent years. When they have come that bad, the practice is to trade them in rather than risk repairs by outside service.

END

(Please resume your reading on p. 36)

Bearing Catalog

A 24-page catalog on Ahlberg ball, roller and thrust bearings for automotive use has been issued by Ahlberg Bearing Co., Chicago, and is available free through Ahlberg jobbers.

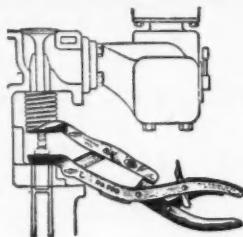
• YOU MAKE MORE PROFIT

when You use These Time-Saving K-D Tools



605 KEEPER INSERTER

Installs nearly all split Valve Keepers. Thumb pads on jaws facilitate loading. Self supporting on valve stem, leaving both hands free to operate lifter.



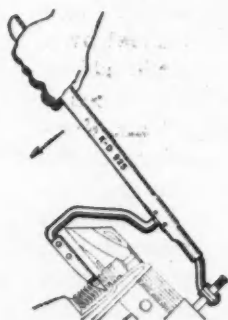
900 VALVE LIFTER

For under-fender use on late models. Sufficiently off-set to let operator see what he's doing. Exclusive auxiliary jaws, for use where extra lift is required. Short and fast—with safety ratchet lock and adjustable jaws.



600 VALVE LIFTER

An old favorite, thousands giving dependable service daily. Jaws adjustable to various sizes of spring and tempered for dependable service. Improved safety ratchet lock.



925 GUIDE REPLACER

Replaces Valve Assemblies in Lincoln-Zephyr, Mercury and Ford V-8-85. Not intended for removing them. In position as shown, downward pressure on handle pulls guides down, allows easy insertion of Retainer.



10 PLIERS SET

In metal kit. Each 4 1/4" long. Milled Jaws, knurled handles, correctly tempered for dependable service.

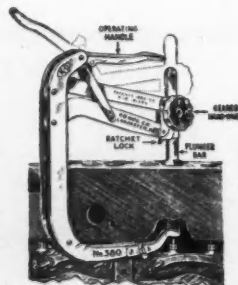


125 POINT REFACER

Refaces points in nearly all distributors. Abrasive wheel securely held between points by spring pressure of breaker arm. A few turns of handle produces a perfectly square and parallel job.

380 COMPRESSOR

For Valve-in-head and L-head motors. Two features—Automatic depth adjustment with hand wheel, and cam-locking operating handle—make this the fastest, surest, Compressor of its kind. One set straight jaws, one set off-set jaws furnished, both adjustable and tempered.



K-D

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LANCASTER, PA., U.S.A.

CANADIAN FACTORY
HAMILTON, ONTARIO

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COMMERCIAL CAR JOURNAL
MAY, 1941



Make SHORT Runs Earn LONG Profits

Short runs! Difficult roads! Hills that demand creeper gears! Time-consuming starts and stops! Frequent loading and unloading! These are the things that burn up time, tear up schedules, eat up profits.

The Outside Frame Trailmobile can help you eliminate these expensive disadvantages of short-run operations. Pull them out of the red! Turn them into money makers! Because Trailmobile has light weight. Hundreds of unnecessary pounds have been removed through scientific design of every part. Yet the safety factor is high. Each part now contributes to the strength of the entire structure. There is no dead weight, no lazy metal used for reinforcement.

All Trailmobiles pull easily because the suspension parts are jig-assembled to fit accurately and make the unit track perfectly. They're fuel savers under all load and road conditions.

The Outside Frame Trailmobile is built in sizes to suit your needs. Find out how it will help you earn longer profits on all runs. Write or 'phone to company headquarters or to the nearest Trailmobile office. A transport service man will call with all the details.



OUTSIDE FRAME TRAILER

THE TRAILER COMPANY OF AMERICA, CINCINNATI, OHIO
Sales and Service Offices in Principal Marketing Centers

POINTS ON PAINT

(CONTINUED FROM PAGE 21)

cent pigment. The more pigment, generally speaking, the less durability to the paint. Black may have as low as 5 to 7 per cent pigment because of the opaqueness of this particular pigment. This idea can be extended until it gets quite complicated.

It is not possible to say how much longer a dark color will last than a light color because it is not possible

to say how long either of them will last. So much depends upon the climate, and the type of service to which the paint is exposed. A combination of the ultra-violet rays of the sun and moisture will eventually destroy the paint film if some form of physical damage does not get it first. Paint near the seashore does not last as long as the same paint inland, other things being equal. The combination of Florida sand and Florida climate seems to be the most effective in destroying paint. Most of the paint

manufacturers do some testing down there and they find that their paint lasts longer most anywhere else. The conditions along the Gulf and in the desert areas of the Southwest are also tough on paint.

Maintaining synthetic enamel finishes is not a process about which you can get a set of rules to guide you. Washing trucks presents a major problem in the life of the finish.

Deciding upon a soap, cleaner or emulsifying agent is a difficult job. Some of them make washing easy but cause relatively fast paint deterioration. Others do not clean so well but the paint lasts longer. Probably any maker of these cleaning agents can make either one. Their problem is twofold: to give you the right compromise between ease of washing and longevity of paint. This part of the problem is a matter of judgment. The other part is to develop cleaning agents that clean easier and at the same time permit longer paint life. Real progress is being made in that direction.

The latter part of this problem is not peculiar to automotive soaps. The soap that effectively cleans a mechanic's hands would scarcely be recommended for a baby's bath. The baby's bath soap that would be pleasant for the mechanic to use would scarcely get the mechanic's hands clean. What the fleet operator wants for enamel finishes, in effect, is a baby bath soap that will clean mechanic's hands. The soap and cleaner manufacturers are now engaged in meeting that requirement.

In the final analysis the fleet operator must use some cleaning agent to get his trucks clean. Generally speaking, the nearer neutral the cleaning agent, the more the enamel likes it and the more the washer dislikes it. It is up to the fleetman to decide the course to be pursued. He can rate cleaning agents by obtaining an analysis at given concentrations. The one with the neutralization number nearest to pH₇ is the mildest.

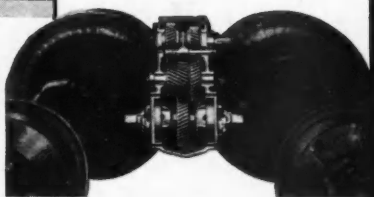
As for waxing, there must be many fleetmen in whom has been instilled the belief that waxing acts as a preservative and as a restorative of a paint finish. This "ain't necessarily so." The gloss of synthetic enamel is on the surface of the film. This original gloss cannot be improved.

(TURN TO PAGE 74, PLEASE)

HAUL BIGGER LOADS



GET MORE TRACTION



SAVE ON EVERY TON-MILE

For real pulling power TWO driving axles under the load are far better than one.

With the THORNTON four-rear-wheel DRIVE, in addition to increased capacity and traction you get more flexible operation since you have two transmission ratios—one for power and one for speed. Your investment in equipment is 25 to 40% less, your operating and upkeep costs are from 30 to 50% lower. With THORNTON "Walking-Beam" spring design less shock reaches vehicle and load.

We can show you how to save with a truck equipped with THORNTON four-rear-wheel DRIVE. Users in scores of industries are lowering costs.

THORNTON TANDEM COMPANY

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DETROIT, MICH.

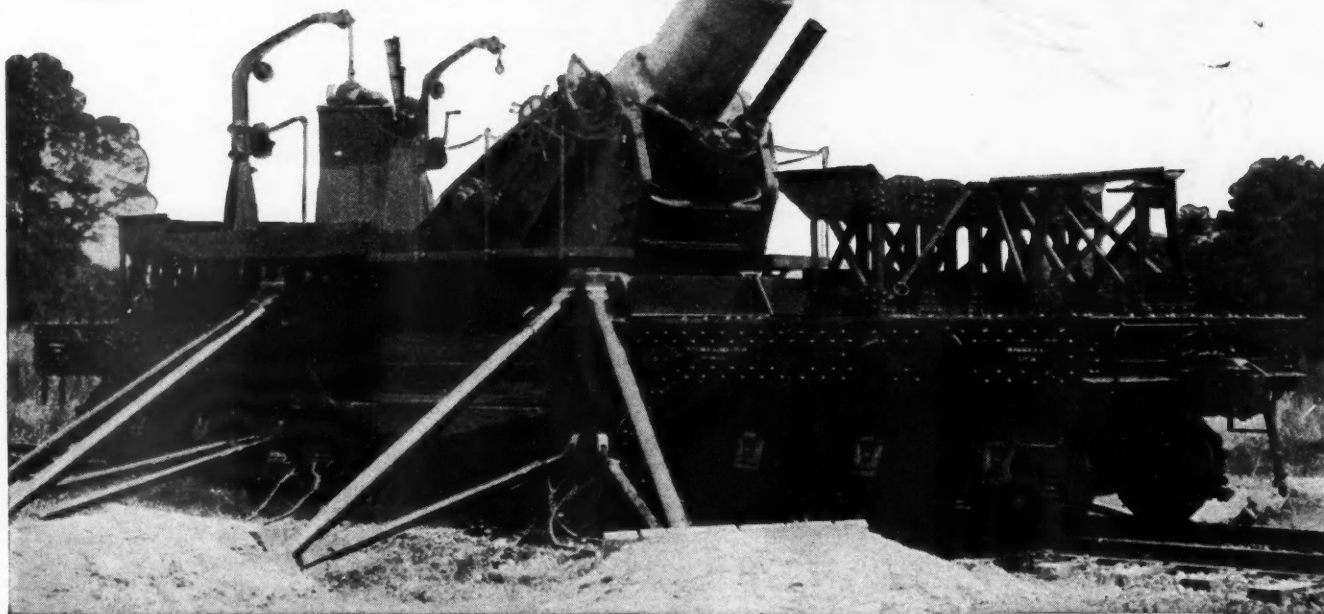
"When you need TRACTION you need THORNTON"

EQUIPPED WITH

Tyson

CAGELESS BEARINGS

● Here is the new 8-inch railway gun of the United States Army. It is equipped with Tyson Cageless Bearings. Ability to withstand shock and perform under severest operating conditions has won for Tyson the approval of both Army and Navy Ordnance Engineers. In trucks, buses, tractors, trailers—in road machinery, power shovels, oil field equipment—in every heavy-duty application, Tyson Cageless *can take it*—and come up smiling.



Pageless FOR HARD SERVICE

Cage-type FOR REGULAR SERVICE

Tyson

TYSON ROLLER BEARING CORPORATION, MASSILLON, OHIO

(CONTINUED FROM PAGE 72)

Waxing means rubbing and rubbing is destructive to the original gloss. If the waxing is preceded by cleaning the enamel with a rubbing compound the effect on the gloss is proportionately greater. The paint experts see no reason for using wax or polishes until the enamel starts to appear dull or begins to chalk. Then for a limited time you can restore to a degree the gloss of the enamel finish. Even then they recommend the use of a liquid polish, applied as often as necessary

to keep the enamel looking well.

When it comes to the use of a coat of clear synthetic over the color coat as a means of preserving appearance you are on a touchy subject. It is not recommended under any circumstances over green, and some other dark colors from which you can gather that it fails much more rapidly over some colors than over others. There is some argument about red. It is recommended over aluminum synthetic enamel but the application is considered tricky and

consultation with the paint supplier is suggested.

The clear synthetic does not chalk as the pigmented synthetics do; it peels. It is definitely allergic to some colors. While paint experts are well aware that some fleets have had a satisfactory experience with clear over color as a means of staving off a complete paint job by scheduling for clear coats at intermediate periods, they suggest that it be made the subject of a test in each case before much confidence is placed in it. Better still, consult your paint supplier.

If you wish to consider the use of clear over color you must weigh the advantages of higher initial luster, maximum retention of gloss, additional protection to fading in light colors, longer periods between complete refinishing jobs and greater ease of washing and cleaning against disadvantage. The disadvantages include reclearing the truck as soon as the clear coat shows signs of disintegration and the fact that the clear coat will yellow the enamel color.

It is hard to justify some of the complaints that drift into the paint factories where they are eventually handled by someone who makes a business of shooting trouble for customers. Most of them are non-related mistakes made by painters who should know better, and probably do, but for some reason or other get careless and break some well accepted rule. If there is any most frequent mistake it has to do with insufficient air pressure.

It looks as if synthetic enamel would be the standard finish for some time to come since there is no other type of material in sight that rivals it in the qualities truck fleet men love best. Paint manufacturers, like all other manufacturers, progress for competitive reasons, if for no other. The progress in the case of synthetic enamel will be in the direction of a faster drying finish and one that will last longer. The goal of the paint chemist is air-drying synthetic enamel that has all the quick setting and drying properties of lacquer plus its almost perfect spot repair characteristics. Translated into dollars and cents, every step in the attainment of that goal will mean lower maintenance costs to the truck fleet.

END

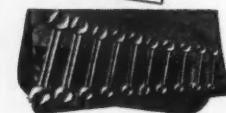
(Please resume your reading on p. 22)

COMMERCIAL CAR JOURNAL
MAY, 1941

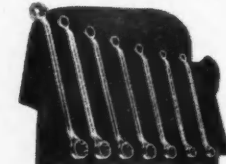


SNAP-ON speed design of such basic tools as end wrenches, boxsockets, and combinations is more than a phrase, more than mere appearance. It's the actual, noticeable difference in the "touch" a genuine Snap-on imparts, the smooth, fast way it slips into accurate position on the work, the "feel" of the tool as it takes hold . . . refinements that add up to greater working confidence, greater individual skill and output. Only the finest steels are used in Snap-on tools, only the "cream" of tool craftsmanship, backed by a 20-year record of leadership in fine tool design . . . your guarantee of quality and performance in every Snap-on tool you buy. There are over 2200 tools in the Snap-on line . . . see your Snap-on salesman, or write

SNAP-ON TOOLS CORPORATION
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BPS-10K Set Supreme Open End Wrenches $\frac{3}{8}$ " to $1\frac{1}{8}$ "



X-70K Set Double Offset Boxsockets $\frac{1}{4}$ " to 1"



8K-LOEX Combination Wrench Set $\frac{1}{2}$ " to 1"



★
BUY BASIC TOOLS IN SETS
Having the right size tool at the right time is the easy way to do fast work, the sure way to accuracy . . . that's why it pays to buy your basic Snap-on tools in complete sets.

Snap-on SERVICE TOOLS
The Choice of Better Mechanics

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—SAYS NEW PROCESS LAUNDRY
SAN FRANCISCO



Keeping this attractive fleet of package cars in "apple pie order" is Mr. Duprey's job... a job recently made more economical by Ring-Free Motor Oil. They've been using Ring-Free in their entire fleet of package cars and coupes more than six months. Results? Listen to E. J. Corbett, general manager of the company: "The results have been most satisfactory... oil changes have

been cut in half... so have filter changes... oil consumption is approximately two-thirds of what it was." Try Ring-Free in your own fleet. See how it saves in other ways, too: cleaner motors, less wear, more gas-mileage. Proof? Call the Macmillan Man or write direct.

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Believe It or Not! by Ripley
REG. U. S. PAT. OFF.

(ILLUSTRATING HOW RING-FREE CURES PISTON-PARALYSIS)

HERE IS A MOTOR OIL THAT DOES THE SEEMINGLY IMPOSSIBLE - IT

CLEANS THE MOTOR - IT IMPROVES PERFORMANCE - IT REMOVES CARBON - WITHOUT GETTING AWAY FROM ITS MAIN JOB: TO REDUCE FRICTION FAST BY THOROUGH LUBRICATION!

—as drawn by Ripley in Life, Collier's, Time

**MACMILLAN
RING-FREE
MOTOR OIL**

* Reg. U. S. Pat. Off.

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STUDY BOARD

(CONTINUED FROM PAGE 30)

it was created.

The act required the board to transmit to the President and Congress on or before May 1, 1941, preliminary reports of the studies and investigations that it has carried. Moreover it was to present such findings and recommendations that it was prepared to make at that time. As it turns out the board, by reason of delays in organization, was not

even prepared at that time to submit even the most rudimentary reports, to say nothing of presenting "findings and recommendations." Hence, despite the terms of the act, this activity will have to be delayed.

Reasons for the snail-like movement of the board may be set forth as follows:

1. The President put off the selection of the board until March 20, just prior to his departure for a fishing trip off Florida.

2. Growling that of the three \$10,000-a-year appointees only one, Nelson Lee Smith, chairman of the New Hampshire Public Service Commission, had any considerable knowledge of the transportation problem. Fairly or unfairly, charges were bandied back and forth that the other two, Wayne Coy, of Indiana and Charles West of Ohio, ardent New Dealers, were political appointees. Mr. Coy, with a "passion for anonymity" though made chairman of the board, may give more time to doing White House chores than bothering about transportation problems, so it has been alleged. Mr. West, a former representative from Ohio, acting in the capacity of Under-Secretary of the Interior, was a New Deal lobbyist of potent pull. In more polite terms Mr. West was and is a "liaison" between the President and Congress. Mr. West's immediate superior, Secretary of the Interior Harold L. Ickes, in one of his frequent moments of irritation, split with Mr. West, and deprived him of office space. Whereat with this gentle hint, Mr. West temporarily separated himself from the Federal payroll.

Protests against the board selections prompted talk of hearings before the Senate Committee on Commerce. The volume of these protests, however, has been exaggerated in published reports, some of which drew the fanciful picture of the President withdrawing Coy and West.

Money by the billions flows from the Federal Treasury as freely as water from a wide-open spigot of a hoghead, so it cannot be said that holding up the pitiful pittance of \$50,000 to start the board off was an element of delay of consequence. A hitch there was in an appropriation for the board but nothing more, since, whether done in due form or not, it is always a simple matter to tap the Treasury by one means or another. The House conferees on a deficiency bill knocked out the provision for an initial \$50,000 for the board, inserted on motion of Senator Hill of Alabama, on the grounds that the Bureau of the Budget had not recommended such an appropriation and that therefore there had been no hearing on it. House conferees, refusing to heed requests to

(TURN TO PAGE 78, PLEASE)

RAILROADS SELECT MONROE SHOCK ABSORBERS FOR WORLD'S TOUGHEST JOB!



This is the greatest tribute that we could receive. Monroes are the only Direct Action Airplane-Type Shock Absorbers approved and used by Railroad Engineers to control the springs on high speed trains.

BUSSES, TRUCKS AND TRAILERS!

Manufacturers and Fleet Operators can depend on Monroe Shock Absorbers to do the job well.

For twenty-five years Monroes have been standard equipment on America's leading automobiles.

Monroes are engineered and constructed to meet requirements where sturdiness and endurance are most important.

Sizes for Busses, Trucks and Trailers:

1 inch—up to one ton. 2 inch—up to five tons.
3 inch—above five tons.

FULLY GUARANTEED . . . WRITE FOR INFORMATION

MONROE AUTO
MONROE, MICHIGAN EQUIPMENT
COMPANY

**MAKE
MORE
MONEY**

CHEVROLET

Light Delivery Units Are Built To Take It



Impressive in their outward styling, Chevrolet's 1941 Light Delivery units are equally impressive in their concealed values—for underneath their sleek lines and contours they are genuine *trucks*, through and through.

Look under the hood and you'll find the Chevrolet Standard *truck* engine, full 90 horsepower, designed for economy and efficiency—an engine with extra-strong *truck* pistons, and with a high-capacity *truck* cooling system.

Look under the body, too. If you are used to seeing passenger-car chassis construction in your delivery units, you'll be surprised at the difference in the Chevrolet. Note particularly the frame, with its deep side-rails and its five rigid cross-members. Note the heavy front axle, the sturdy steering gear, and especially the rear axle—having not one major part interchangeable with any part of the passenger car axle.

In short, Chevrolet's Light Delivery units are *truck-built to do truck work*—and to do it with Chevrolet's traditional economy of operation and upkeep.

CHEVROLET MOTOR DIVISION, General Motors Sales Corporation, DETROIT, MICH.

Inspect these

NEW 1941 FEATURES

★90-HORSEPOWER VALVE-IN-HEAD ENGINE . . . 174 FOOT-POUNDS OF TORQUE
★ NEW RECIRCULATING BALL-BEARING STEERING GEAR ★ NEW, MORE COMFORTABLE DRIVER'S COMPARTMENT.

60 MODELS

ON NINE LONGER WHEEL-BASES . . . A COMPLETE LINE FOR ALL LINES OF BUSINESS

CHEVROLET TRUCKS

"THRIFT-CARRIERS FOR THE NATION"

(CONTINUED FROM PAGE 76)
withdraw objections to the provision, responded that even though lack of appropriations might delay the board's organization, it did not matter since the President's belated action indicated that he was in no hurry to have the board get going.

It is no secret that there was widespread disappointment at the selection of Messrs. Coy, West and Smith, particularly the former two, because of lack of qualification as experts on the complicated rail-motor-water

transportation problem but talk of difficulty in getting Senate confirmation never carried much weight.

The disappointment also has a sectional and political phase. Some southern senators are crying in their beads because none of the presidents' appointees comes from their part of the country. In that section, as is well known, there is extreme sensitiveness over the freight rate structure.

In any case, whatever the board's competence or lack of it, it has a full-

sized job ahead of it and predictions already are made that the President will take occasion to exercise the authority given him to extend the board's life beyond Sept. 18, 1942, which otherwise would be its expiration period. An extension of two years is allowed by the act. The law provides for the employment of a general counsel at \$9,000 and a secretary at \$7,500 a year, together with a staff of experts, assistants, special agents, examiners and attorneys. The board is left free to adopt its own procedure and has broad powers of investigation and subpoena like those conferred on the ICC.

That the task of the board is difficult and big—indeed some members of Congress still say they do not know why the board was set up or what it is to do—is clear from provisions of the act creating the board.

Sec. 302 (a) of the act provides that it shall be the duty of the Board to investigate—

(1) the relative economy and fitness of carriers by railroad, motor carriers, and water carriers for transportation service, or any particular classes or descriptions thereof, with the view of determining the service for which each type of carrier is especially fitted or unfitted; the methods by which each type can and should be developed so that there may be provided a national transportation system adequate to meet the needs of the commerce of the United States, of the Postal Service and of the national defense;

(2) the extent to which right-of-way or other transportation facilities and special services have been or are provided from public funds for the use, within the territorial limits of the continental United States, of each of the three types of carriers without adequate compensation, direct or indirect, therefor, and the extent to which such carriers have been or are aided by donations of public property, payments for public funds in excess of adequate compensation for services rendered in return therefor, or extensions of Government credit;

(3) the extent to which taxes are imposed upon such carriers by the United States, and the several states, and by other agencies of government, including county, municipal, district, and local agencies.

END

(Please resume your reading on p. 31)

EBERHARD *"does its bit"* *as* HEIL AID^S THE AIR CORP^S



When Heil built these airplane refueling trailers they found Eberhard lock equipment capable of meeting the severe Government specifications.

Security, smooth, dependable operation and exceptional durability to withstand hard, snappy service were demanded.

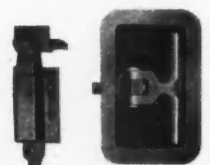
For rear doors and compartment doors they selected a modified form of the No. 565693 "Slam-lite" Lock with No. 5630 Recessed Folding Handles.

Upon closing the door the tapered lock bolt pulls it tight, preventing noise and vibration.

Security is provided by a Push Bolt Cylinder Lock. Simply push the plunger and the bolt enters a hole in a special plate welded to the flat rod. Turn the key and the bolt springs out of the hole.

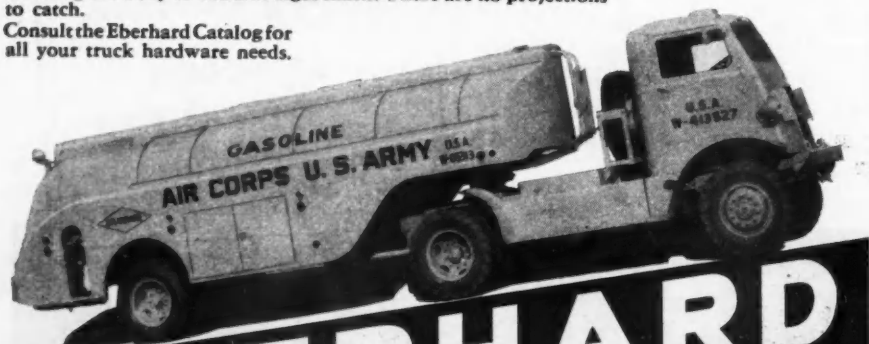
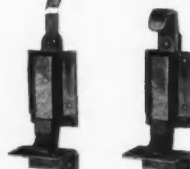
When locked, the T handle is folded into the recessed plate and held in position by a spring. Compactness thus gained permits building the body to extreme legal limits. There are no projections to catch.

Consult the Eberhard Catalog for all your truck hardware needs.



NO. 5630
Recessed
FOLDING
HANDLE

NO. 565693
"Slam-lite"
LOCK



EBERHARD

MANUFACTURING CO.

DIVISION OF
THE EASTERN MALLEABLE IRON CO.
CLEVELAND, OHIO

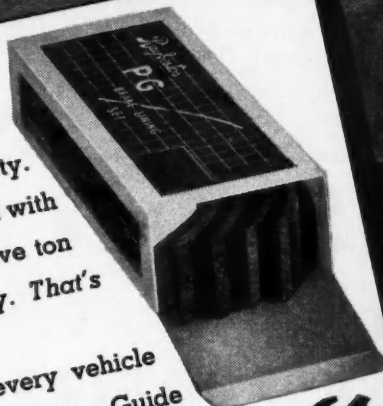


MILE HIGH and SAFE!

To ascend the 6000 foot slope of Cannon Mountain, the track cable on which the aerial tramcar rides was designed with a 220 per cent margin of safety. Raybestos Heavy Duty Brake Lining is also built with a margin of safety—300 per cent. It will stop a five ton truck, for example, with a 20 ton load—safely. That's stopping power!

You can have this extra brake safety for every vehicle in your fleet. The Raybestos Truck Recommendation Guide shows you how. Write for it, on your letterhead, now. It's free.

THE RAYBESTOS DIVISION of Raybestos-Manhattan, Inc., **BRIDGEPORT, CONN.**
Brake Linings, Clutch Facings, Fan Belts, Hose • For Cars, Trucks, Buses, Tractors



The Cannon Mountain Tramway, Franconia Notch, New Hampshire. The first and only aerial passenger tramway on the North American continent.



Raybestos

AMERICA'S BIGGEST SELLING
BRAKE LINING

"YOUR 2 BEST FRIENDS for HIGHWAY SAFETY"

TRUCK POOLING

(CONTINUED FROM PAGE 31)

nish new trucks now that we have decided on a lease-lend all-out effort.

The attitude of English officialdom toward road transport has changed but the plans for making maximum use of trucks are being made under pressure of time and circumstances and resulting in considerable friction. The problem will undoubtedly be solved but at a tremendous economic and, I fear to some extent, National

Defense loss and an untold amount of industrial delay and public inconvenience.

But one of the plans that has general approval is the so-called "Road Transport Pool." This pooling of vehicles originated with the users of trucks themselves. Limited in the way of vehicles, of rationed fuel and with deliveries by railroads unpredictable, various business groups organized traffic pools and invited local and long distance for-hire haulers to join the pools. Thus specialized traf-

fic pools grew up in the large shipping centers. In Liverpool, for instance, there are local cartage pools for handling bacon and hams from ship to cold storage; butter, cheese and eggs from ship to cold storage and warehouse; canned meats from ship to warehouse; heavy meat from ship and cold storage to wholesale markets, and meat distribution from markets and abattoirs to retailers. There is also a general pool that in addition to distributing foodstuffs and raw materials to all parts of the country assists port authorities in keeping the quays clear of goods.

In Manchester there is both a local pool and a long distance pool.

When the inability of government-controlled railroads to handle necessary traffic became all too apparent, the Ministry of Transport, which now exercises control authority over all forms of transportation, adopted a policy of utilizing trucks which was termed an official reversal of policy. The Ministry perceived the merit of the vehicle pools and proceeded to organize and operate its own haulage pool. The Ministry hires vehicles from haulers primarily to carry traffic on Government account. Vehicle ownership is not affected and participating operators continue to be responsible for the actual operation and maintenance of the vehicles concerned. Participation is voluntary. At the outset participation was restricted to for-hire haulers. It was indicated that later on the scheme might be broadened to include private carriers. Payment for vehicles is made by the Ministry on the basis of profits earned in a standard year. This means that any hauler participating in the pool will be guaranteed the same net revenue per ton of payload capacity as he earned in a standard year. *No extra profit due to war conditions!*

The vehicles attracted by the pools are largely those of occasional haulers with relatively few trucks, and the spare vehicles of the larger haulers who do business with their regular customers. The Ministry of Transport has power to decide how many units the operator can spare!

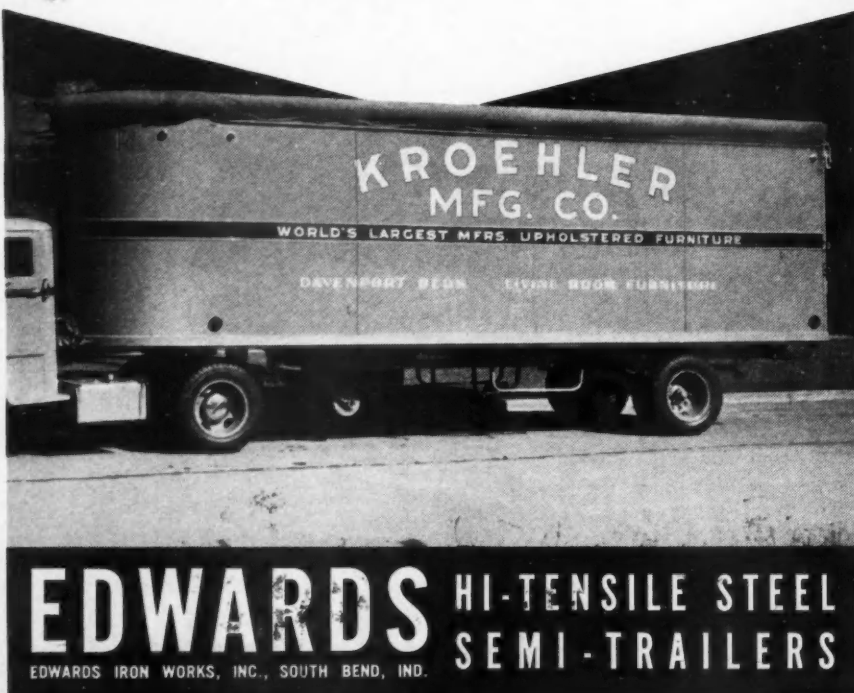
Another form of vehicle pool is the emergency transport pool. This supplements all other road transport arrangements. Its basis is mutual aid. These pools are intended to provide (TURN TO PAGE 82, PLEASE)

THIS TRAILER SAVES WEIGHT — ADDS TO YOUR PROFITS...

EDWARDS lightweight trailers cut deadweight so you can haul more payload . . . and still stick to tried and proved methods of trailer design. Much of the excess weight is saved by fabricating from hi-tensile steel. Thus, much lighter sections can be used to carry the load imposed without any sacrifice in strength.

By following proved principles of trailer engineering, Edwards also saves you money when repairs are necessary. That also counts in operating profit.

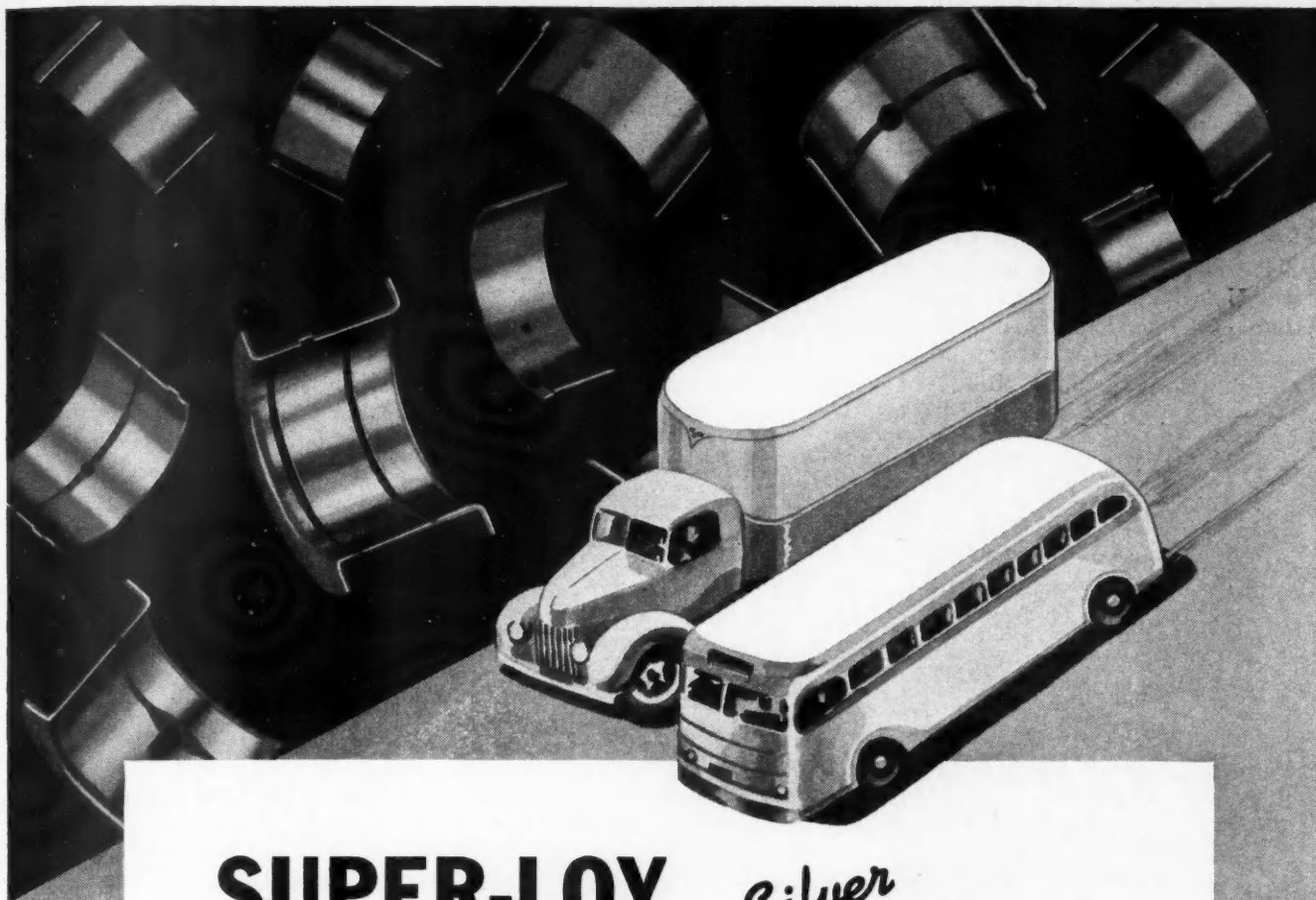
Wide frames, straight end type heavy duty springing, Timken tubular axles, full width pick-up plate and more than 20 other features make Edwards a sound trailer investment. Investigate today.



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COMMERCIAL CAR JOURNAL
MAY, 1941



SUPER-LOY *Cadmium-Silver* **BEARINGS**

GIVE LONGER SERVICE!

In continuous, heavy-duty operation, fleet records show that Federal-Mogul Super-Loy Bearings give superior performance. They put more mileage between engine overhauls. They stand up under unusual high-temperature operating conditions. They provide a solution for "tough" engine overhauls and where there is a crankshaft problem to lick. Worth-while maintenance economies can be obtained with Super-Loy Bearings—ask your Federal-Mogul source of supply for complete details.

FEDERAL-MOGUL CORPORATION
DETROIT, MICHIGAN



ENGINE BEARINGS FOR EQUIPMENT • FOR SERVICE • ENGINEERED FOR OIL CONTROL

(CONTINUED FROM PAGE 80)

any area suffering intensive air attack with road transport facilities for clearing up the debris, removing furniture, supplying water, medical supplies and emergency rations. Municipal authorities and private operators collaborate in these arrangements. Pools are set up on district basis.

Planning by the truck industry of the United States should include study of the ports and large terminal and industrial areas where congestion of transportation facilities and

disruption of distribution services are most likely to occur when the all-out effort begins hitting on all cylinders, and also in the event that this country is attacked. When the critical areas have been determined steps should be taken to plan the formation of pools of trucks that would be called into being at the first indication of a developing transportation emergency. If we are attacked these pools would be called into being and stand in readiness to furnish emergency aid to bombed areas, and supplementary

aid to military forces if they found such assistance imperative.

Planning should include managerial control of pools. Control of a pool should not be in the hands of committees or in the hands of bureaucrats. It should be vested in a man with brains and ability, a man who knows truck transportation, and that man should be given a free hand to pick his staff of advisers and be given dictatorial powers in the operation of the pool. Committee haggling is just another form of congestion.

But before the industry can make plans for the establishment of pools it must know what sorts of vehicles are available for pooling purposes. It is essential, therefore, that a census of trucks be taken which would reveal the types of body equipment in use and the load capacity of the equipment. It would reveal where the equipment is garaged, and should procure from all classes of truck owners an idea of the number of trucks they have in reserve to take care of traffic peaks, and what vehicles of that reserve they would make available for pooling purposes. This available reserve should be cataloged and for the duration of the emergency the catalog should be kept up to date.

A vehicles census of this kind has been under consideration by the National Defense Council. Proposed questionnaires have been developed by the Public Roads Administration for use by State Highway Departments. The truck industry should urge that the census be undertaken as quickly as possible. The truck industry cannot work out its plans on a practicable basis until the census produces the necessary facts.

I realize only too well that the pooling idea is a radical one and that the suggestions I have made do not begin to cover the many organization problems that will immediately occur to truck operators. But we must discuss those problems now and solve them in such a manner that we will be able to handle the emergencies that will inevitably arise. Unless we make definite plans now to take care of them efficiently, we will certainly experience commandeering of vehicles by local, state and federal authorities which will disrupt normal road transport services, prove far more costly to the industry and the nation than the remedy I suggest, (TURN TO PAGE 84, PLEASE)

5 cu. yd. Heil Quality-Built Dumping Unit—one of many types available.



2 big reasons why it pays you to look to HEIL for Bodies Hoists Tanks

1 Complete Line
Hydraulic dump units and transportation tanks to meet every requirement of heavy-duty service — with long-time, profitable operation.

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A substantial organization that accepts full, undivided responsibility for its claims — and is always nearby to do so.

Successful fleet operators everywhere recognize the Heil Quality trademark as a guarantee of satisfaction, on hydraulic dump units and transportation tanks in all types and capacities, for all kinds of service. Let the knowledge acquired by years of experience and research guide your judgment in making a sound investment. Get Heil recommendations on your next equipment order. Write today for free Heil Equipment manual.

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Water Pumps and Softeners •
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In Sterling Steelductor, you can get the advantages of the same fine stainless steel conductor—the same low capacitance—the same long-lived insulation—and the the same electrical efficiency that aviation engineers have found so superior.

In cars and trucks, as in aviation or any other service where ignition cables are carried in metal conduits or guides—Steelductor increases fuel economy, and top engine speeds—gives quicker starting, better idling, and retards the burning of spark plug electrodes and points.

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WHERE PERFORMANCE COUNTS YOU'LL FIND STEELDUCTOR



Breeze Manufacturing Co.
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IGNITION CABLE

**The Modern Aircraft Type
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(CONTINUED FROM PAGE 32)

and simply intensify the emergencies.

Meanwhile legislators should be made to realize that the national defense effort demands the utmost of motor trucks, and that while trucks are willing they are hampered by restrictive measures. In England, mention of barriers such as exist in the State of Kentucky caused amazement and brought the question, "Why is the condition tolerated?" The transportation problem which the English have in their laps today is largely the

result of peacetime restriction of road transport. They realize it now. The experience of England should serve as an example to the United States that nothing should be permitted to interfere with the development of highway transportation and that each form of transportation should be allowed to seek its economic level. Politically-inspired restrictions should not be permitted to interfere with national defense, which is of paramount importance.

(Note—For Editorial Comment on Mr. Horner's suggestion, see page 18.)

ICC BRAKE TESTS

(CONTINUED FROM PAGE 38)

end of the scale. Thus the work that the truck was doing at the time of the test becomes an important factor but one upon which there is no data. The forms used by the Bureau investigators do not show to what per cent of licensed capacity the truck was loaded.

There is likewise no evidence to show whether the brakes of a truck would stop it in the required distance when the truck was new, nor is there any data on the condition of the brakes at the time of test.

The detailed tabulations show that buses made the best showing. Slightly more than 50 per cent of the buses were able to stop in the legal distance, but the buses were tested without passengers and without baggage. This immediately arouses the suspicion that under working conditions the buses, which were the only type of vehicle to have a majority meet the requirement, would fail as badly as other classes of vehicles. This suspicion is supported by the fact that when buses were put into weight classes and the average braking distances by weight classes were computed, not one class of bus could average up to the 30 ft. requirement.

The larger sizes of four-wheel trucks could not make the 30-ft. stop even when empty. Four-wheel trucks weighing between 10,000 and 15,000 lb. gross averaged 31 ft. Only the empty tractor-trailer combinations weighing between 15,000 and 20,000 ft. gross averaged a legal stop. All smaller sized combinations were unable to make it even without load. Fifteen three-axle trucks tested averaged a 38.8-ft. stop, with only three stopping within the specified distance.

These results may at first appear to be just a record of dismal failure. Upon sober reflection they may cause a re-examination of the standard to which these vehicles were tested. In defense of the Bureau it should be stated that the standard was not one of its own making. It was one of its own choosing. The standard was created by the Brake Committee of the SAE. It was approved by the National Conference on Street and Highway Safety. The support of these bodies did not make any considerable number of vehicles stop accord-

(TURN TO PAGE 86, PLEASE)

WEAVER Rail-less Twin Post Lift



Saves ON
SERVICE WORK

Weaver Twin Post Lifts will handle practically anything on wheels! That's why service managers prefer them for both lubrication and service work. Under-car clearance and free wheels make them elevated workbenches for the most economical maintenance of truck or bus fleets. Excess dead weight of rails is completely eliminated . . . all your power is used to lift trucks!

Every job that formerly required a creeper can be performed better on a Weaver Twin Post; brake work, clutch work, transmission jobs, tie-rod adjustments, changing pistons, bearings and mufflers, and dozens more. You'll easily save a third of the time formerly required on all under-chassis work.

Weaver Lifts handle the TOUGH jobs that no other lift can touch . . . and save you time and money on the ordinary jobs, as well. See your jobber or write direct for complete information.

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You WANT THIS KIND OF SAFETY, TOO

It is natural for men in the Petroleum Industry to take steps that make for safety. That's why so many equip their motor trucks with **TRU-STOP Emergency BRAKES**.

—to provide the safety *you* want for your equipment—so that drivers make safe, smooth stops from any speed, and more of them—so that drivers can use the emergency brake *continually* to supplement and save service brakes on long grades—so that drivers can always depend on positive braking no matter how thin the lining, because "TRU-STOPS" don't stretch—and so that motor trucks and drivers have all these advantages at *lower* cost for brake maintenance.

TRU-STOP Emergency BRAKES with the ventilated disc are installed on the propeller shaft. They are standard or optional on an increasing number of motor trucks and buses. Any details you desire will be given gladly.

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TRU-STOP *Emergency* **BRAKES**



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**THE TRU-STOP
"VENTILATED" DISC
MAKES TRU-STOP
EMERGENCY BRAKES
SERVE BETTER AND
LAST LONGER**



Buses in Scranton, Pennsylvania Equipped with "TRU-STOPS"

Here you find the same fine principle of safe braking working to equal advantage with comparatively light loads—frequent stops—need for maintenance of schedule—lives and property to be protected.

(CONTINUED FROM PAGE 84)
ing to prescription. If either of them did any field work on vehicles under working conditions now is the time to bring it out into public view and help the Bureau out of the hole which they helped dig.

When the Bureau attempted to tabulate braking performance by types of brakes on loaded tractor-semi-trailer, it produced a set of figures that fail to contribute any usable information. For instance, under the heading "Mechanical or hydraulic

on one unit, vacuum on the other unit," an ambiguous heading at best, it lists the 30,000 to 40,000 g.v.w. class with an average stopping distance of 40.3 ft. Under the next heading, "Vacuum on Both Units" this same weight class averages a stop of 43.7. If one were to take these figures seriously and use them to form a conclusion, the immediate conclusion would be that the average stop of the latter group of trucks could be improved about 3 ft. by removing one vacuum unit. Ridiculous, of course.

ous, of course.

Tests made of combinations with "Air On Both Units" showed quite a wide variation which makes it impossible to ascribe the results—good or bad—to air actuation as such. Combinations from 20,000 to 30,000 lb. g.v.w. with air actuated brakes averaged a 29.2 ft. stop while for the 40,000 to 50,000 ft. class the average stop was 41.1 ft. Can any conclusion be drawn from this comparison? It would be unfair to decide that air actuation is good in one case and not in the other without knowing the capacity of the air actuating system, what type and size of brakes the air operated and what condition they were in. Added to these uncertainties it is possible that there were some trucks in one weight class that should have been in the other. That would depend on how they were loaded.

There are a number of conclusions that can be drawn from the report. One is that if the I.C.C. Bureau of Motor Carriers obtains a means of enforcement and maintains its present standard, the great majority of trucks cannot continue to do the work they are now doing unless they respond amazingly to improved maintenance.

Another is that the Bureau may find itself taking trucks off the road that have been legally licensed and legally loaded in compliance with State laws. Just how this will work out is questionable. It would seem to be necessary for the Bureau to determine if the failure to meet the standard is caused by inadequate equipment, poor maintenance or overloading.

Still another, and one that probably will not find favor with the present sponsors or authors of the present standard, is that the standard should come up for critical examination. It is possible that this standard may become a sacred cow without the blessing of any satisfactory experience. It may even be suggested that the standard be based upon the findings of this report.

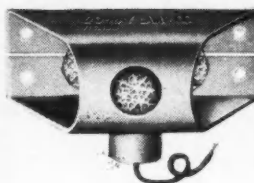
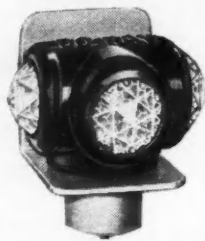
One thing is certain, the report shows the immensity of the job before the Bureau of Motor Carriers and indicates that if the Bureau is to do a job will mean something the purse strings will have to be loosened by those who hold them.—H. J.

END

(Please resume your reading on p. 40)

DO-RAY ALL RUBBER 3-JEWEL LAMP

Can be used for clearance, marker or parking. Waterproof, dustproof, vibrationproof. Lenses are interchangeable thereby making it possible for the lamp to be mounted on either side of the vehicle with the amber lens in front and the red lens on the rear where it should be according to the law.



Lamp only. Can be used as a fender lamp. Equipped with 63 S. C. bulb.

1106-3.....3 Jewels
List Price.....**80c**
1106-2.....2 Jewels
List Price.....**75c**

This lamp is furnished with a heavy metal angle bracket. Cadmium plated. Equipped with No. 63 S. C. bulb.

1106-B1.....3 Jewels List Price.....**85c**
1106-B2.....2 Jewels List Price.....**80c**

The rubber lamp is protected by a heavy cadmium plated metal guard. Equipped with No. 63 S. C. bulb.

1106-G1.....3 Jewels
List Price.....**90c**
1106-G2.....2 Jewels
List Price.....**85c**

USE

NOBBY REFLEX SIGNAL

For trucks, busses and trailers. Lens molded in one piece, cannot come loose or get out of focus. Heavy metal frame. Withstands severe abuse.

1292
List Price.....**\$1.00**



FLEX-FIT ALL RUBBER 3-WAY TRUCK & BUS LIGHT

Flexible... fits all curved and flat surfaces. All contact strips and body vulcanized into one inseparable unit. Waterproof. Shockproof.

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List Price.....**\$2.50**

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STURDI-BILT MIRRORS

Can be extended 19 inches from body. Heavy rubber bumper guard absorbs shocks and reduces possible damage to mirror. Complete with clearance lamp and hinge mounting adjustable to any position. Silver luster finish.

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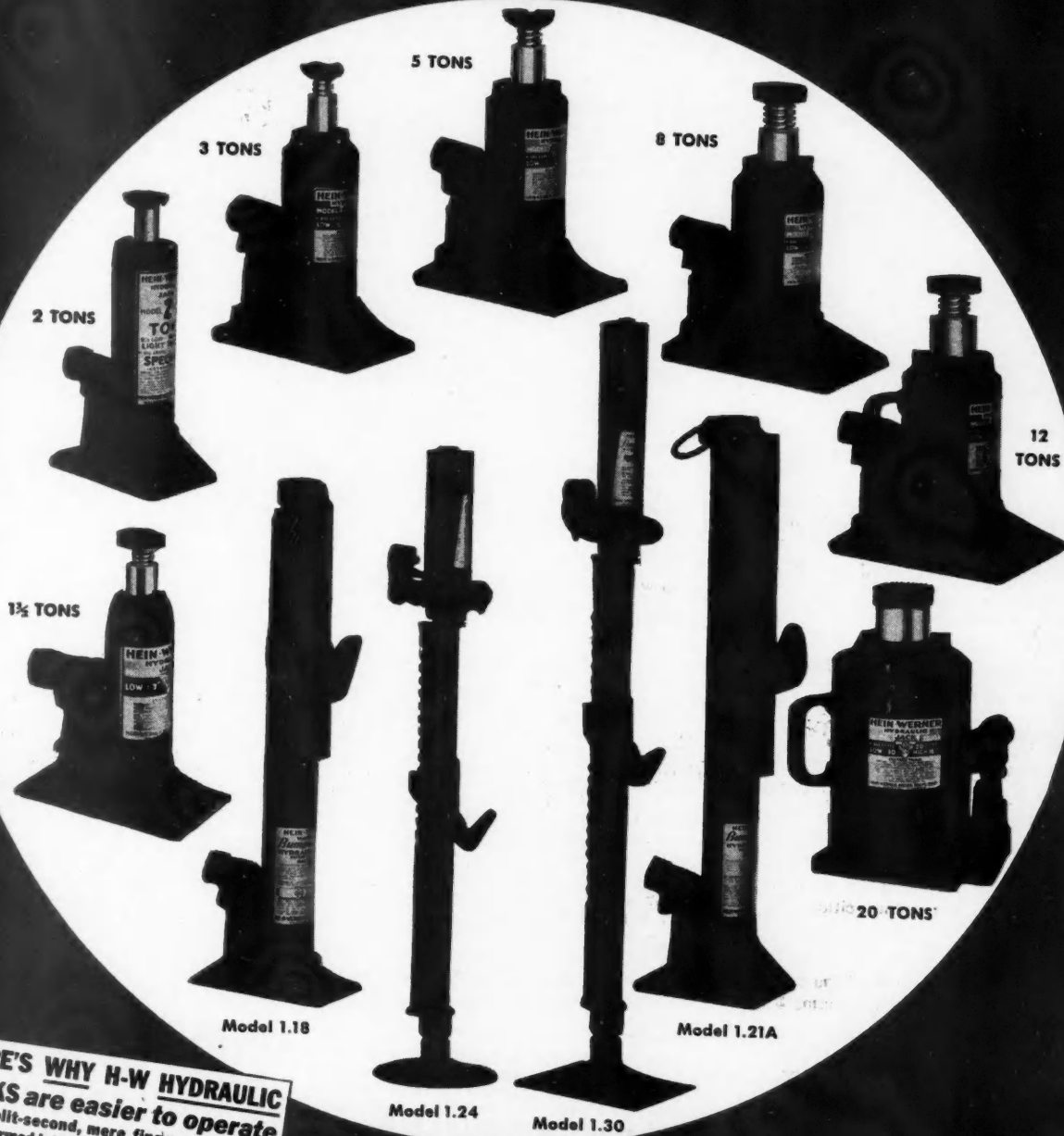
SAFETY LIGHTING AND REFLECTING EQUIPMENT



SAVE TIME and MONEY

by equipping your fleet with super-powerful, easy-operating

HEIN-WERNER HYDRAULIC JACKS



HERE'S WHY H-W HYDRAULIC JACKS are easier to operate
In a split-second, mere finger pressure is transformed into a lifting force of several tons

1. Push a 2 lb. pressure on the end of jack handle "A".

2. This causes a 50 lb. downward pressure on piston "C" when "A" is 25 times as long.

3. ... Which becomes a 2 1/2 ton upward force on the face of the ram. Since the face of the ram has 100 times the area of pump piston "C".

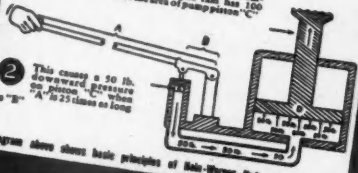


Diagram shows basic principle of Hein-Werner Hydraulic Jack Power

LEGISLATIVE LOOKOUT

(CONTINUED FROM PAGE 17)

nations were limited to maximum of 25,000 lbs., pay-load.) New law provides 9000 lb. per wheel and 18,000 lb. per axle when equipped with low pressure pneumatic tires (increased from 17,600). Maximum governed by formula $700(L+40)$. With maximum length of 45 ft. this would permit 59,500 lb. gross weight.

IOWA

H.118 allows persons over 16 to operate light delivery trucks.

KANSAS

H.453 amends carrier regulation to provide that when distance traveled in Kansas is less than 20 miles, such trips are not deemed to be "regular."

A new diesel fuel tax law, effective July 1, prescribes a use tax of 3 cents per gal. in lieu of the present distributors' tax.

MAINE

S.448 provides for examination of motor vehicles by inspectors.

S.320 legalizes sealed beam headlights.

H.1479 imposes 4 cents per gallon tax on fuel other than gasoline.

MARYLAND

S.421 provides length of 55 ft. for vehicle or combination, increases axle weight to 22,400 lb., and provides for formula $750(L+40)$ for maximum of approximately 71,250 pounds for all vehicles and combinations. Governor is expected to act on bills this week.

MINNESOTA

H.374 increases gas tax to 4c. and repeals one mill road and bridge levy.

NEW MEXICO

H.71 increases speed limit to 50 for trucks; no limit for passenger cars and buses.

NEW YORK

H.1898 imposes tax of 1/10 of 1 per cent on gross income within cities.

NORTH CAROLINA

S.145 reduces license fees on farm trucks by one-half regular fees. Minimum, \$10.

OREGON

S.199 limits length of vehicles to 35 ft.

S.1 fixes 45 m.p.h. speed limit.

S.319 permits log haulers to exceed 54,000 lb. gross weight.

PENNSYLVANIA

H.366 increases the speed limit on Penna. Turnpike by 20 m.p.h. for all classes of vehicles (70 m.p.h. top).

SOUTH DAKOTA

H.275 authorizes Highway Commission on application after hearing to permit use of vehicles and combinations of greater size and weight than authorized by law in

areas which heretofore have been served by railroads that have been abandoned or that may hereafter be abandoned. The Commission is empowered to fix speed limits for such vehicles and to designate highways that may be used.

VERMONT

H.46 substitutes weight limitation of 600 lb. per inch of tire width in place of 16,000 lb. axle weight if gross exceeded 20,000 lb.

WASHINGTON

S.173 repeals 14,000 lb. limitation on axle weight of three-axle vehicles. Gross weight for two-axle vehicles is increased from 24,000 to 28,000 lb. If distance between axles is over 18 ft. weight is governed by formula $750(L+40)$ and if distance is 18 ft. or less formula of 650 $(L+40)$ is applied. This permits gross weight of 56,250 lb. for single unit and 75,000 lb. for combinations.

The following bills were introduced since the last issue, but had not been passed when this issue went to press:

ARIZONA

H.69 would impose use tax of 5¢ on all motor vehicle fuel.

DELAWARE

S.65 would provide for permanent license plate to "follow the car" and for year-round auto inspection.

H.313 would increase gross weight for tractor, semi-trailer combination from 40,000 to 48,000 lb.; axle load from 18,000 to 22,000 lb., and 4-wheel single unit from 26,000 to 28,000 lb.

FLORIDA

H.83 would impose additional 1¢ gas tax.

ILLINOIS

H.438 would prohibit double-deck transportation of motor vehicles.

S.284 would increase axle weight for trucks and buses from 16,000 to 18,000 lb., and limits gross weight of vehicles to 30,000 lb.

S.284 would permit 18,000 lb. per axle on balloon-tired buses and trucks.

H.508 and S.362 would require Department of Public Works and Buildings to operate free of charge, ferries over rivers where no bridge connects highways.

IOWA

H.557 would increase axle weight from 16,000 to 17,000 lb.

MAINE

S.532 would amend weight limitations. (Details not available).

MICHIGAN

H.306 would require a driver of any vehicle weighing more than 10,000 lb. to come to full stop before crossing railroad tracks and proceed only with competent flagmen (interpreted to mean that all haulers of gasoline in quantities of more than 1,200 gallons would be required to have 2 men on trucks).

MINNESOTA

H.1505 and S.1326 would provide for extension of platforms not more than 3 inches beyond bumpers on motor vehicles.

MISSOURI

S.137 would limit transportation of gasoline to 2000 gallons.

S.136 would create Missouri State Turnpike Commission consisting of four members appointed by Governor, authorized to

build and operate turnpikes, charge tolls, and acquire land by purchase or condemnation.

S.153 would regulate common and contract carriers; authorize Public Service Commission to prescribe regulations for private carriers and private carriers to furnish liability insurance or bond.

S.154 would provide passenger car fees from \$3.50 if less than 12 horsepower to \$25 if more than 72 horsepower; commercial vehicles to range from \$10 if gross weight less than 2,000 lbs., to \$500 if gross weight 45,000 to 50,000 lb.; vehicles composed of more than one unit to be licensed separately; permits municipalities to impose \$3 fee on each commercial vehicle.

S.145 would regulate delivery of motor vehicle and require in-transit tags with \$50 fee for first set and \$3 each additional set; require liability policies in sum of \$5,000 and \$35,000 for payment of personal and property damages.

H.550 would levy privilege tax on petroleum products transported through state at rate of 1¢ per barrel on crude oil, ¼¢ per gallon on gasoline, and 5¢ per 1000 cubic feet of natural gas.

NEW HAMPSHIRE

H.386 would provide equipment requirements in accordance with I.C.C. regulations.

H.390 would provide 12½ ft. height limitation except by special permit.

OKLAHOMA

S.212 would provide for superhighway between Oklahoma City and Tulsa, to be paid for with tolls, and supervised and managed by Oklahoma Turnpike Commission.

RHODE ISLAND

H.926 would regulate transportation of inflammable liquids and regulate construction of vehicles used therefor.

H.933 would fix maximum length for single unit at 35 feet and reduces width from 102 to 96 inches.

SOUTH CAROLINA

H.453 would reduce gas tax from 6¢ to 5¢ per gallon.

TEXAS

S.357 would prohibit operation of commercial vehicles from midnight Friday until 6 a.m. the following Monday.

H.810 would permit railroads to engage in motor transportation business.

WISCONSIN

H.686 would increase length of vehicle from 33 feet to 35 feet.

FEDERAL

H.4142 would provide for construction in Los Angeles City and County of superhighway to relieve congestion caused by defense activities.

END

(Please resume your reading on p. 18)



Oversized manholes in the liquid yeast tanks of this Fruehauf trailer solved the problem of hauling dry feed in bags on the return trip. Milbrew, Inc., Milwaukee, is the owner.



Truck Equipped with LINDSAY STRUCTURE Wins Nation-Wide Diamond-T Photo Contest

The above photograph of a handsome Lindsay Structure ice cream body on a Diamond-T chassis won first prize in a recent Diamond-T photo contest. Note the clean, attractive lines of the body and its wrinkle-free panels. This all-steel Lindsay Structure body was built for the Tropical Ice Cream and Sherbet Co. by the Dave Fyfe Body Works, Tampa, Florida.

A PRIZE WINNER In Beauty-In Performance

All-Steel Lindsay Structure Bodies Combine Tremendous Strength with Light Weight

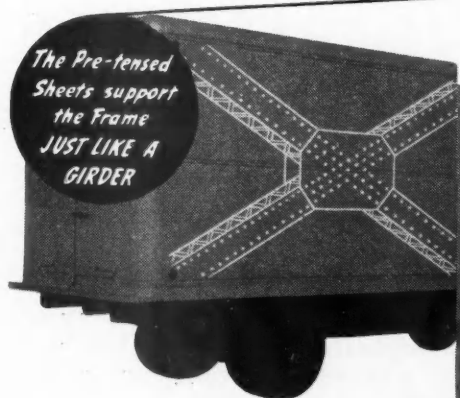
You can't beat the all-steel Lindsay Structure body when it comes to smooth, graceful lines. And you won't find another body that holds up nearly so well under the gruelling punishment of heavy loads and rough roads.

There's a reason for this extra strength...this extra ruggedness. Lindsay Structure panel sheets are "pre-tensed" so that they instantly resist distortion and greatly reinforce the framing. By thus utilizing the strength of every ounce

of steel, all unnecessary weight is eliminated.

Lindsay Structure is not expensive, because all parts are fabricated by mass production methods. Yet bodies can be built to any size with square or round corners and straight or slant backs. In case of an accident, damaged sections can be replaced without disturbing undamaged panels. Write, Dry-Zero Corporation, 222 North Bank Drive, Chicago; or, 60 East 42nd Street, New York.

Write for Bulletin and Full Information



LINDSAY STRUCTURE **ALL-STEEL** Truck and Trailer Bodies

BOMBS & BLACKOUTS

(CONTINUED FROM PAGE 33)

come after you. To be on the safe side, if in any doubt, I stop immediately. So far I have never been fired on.

We never stop for an air-raid. Actually when driving it is very difficult to hear the sirens, and when the war first started the police used to stop all vehicles merely to inform the driver that the sirens had sounded, permitting him to stop by the roadside or to proceed as the driver chose. Out in the country, in some districts, they have the custom of placing by the roadside big wooden signs bearing the words "Air-raid on," for the information of passing drivers.

In London, the traffic lights are not easy to see, particularly in the sunshine. The glass face of each light is completely covered except for a tiny cross in the center. At night the colored cross shows up fairly well, and whilst naturally it cannot be seen so far off as the pre-war large round light, yet in any case one has to travel so slowly in the black-out that it does not really matter. But in the day-time one has to approach traffic lights very cautiously because of the difficulty in reading them. Outside London, different counties have various rules governing traffic lights. In some places the lower half of the light only is blacked out, so that the top half-circle (close under the cowl) only shows; in other localities the whole light shows, but the power is very much reduced. Personally I prefer this latter method, because though you cannot see the lights very far away, when you do see them it is easy to distinguish the color. Some districts, better still, keep the lights during the day-time precisely as before the war, and merely reduce the current at black-out time each evening.

I consider myself lucky when my journey takes me to towns on roads well known to me, because all sign-posts have been removed by the military, and only by continually stopping and asking the route can one find one's way in a strange district. The sale of maps is prohibited, but we are allowed to keep those we already had; but even with a map, it is still very difficult to distinguish

places, as the names of towns and villages are all removed. All clues to locality are scrupulously obliterated. The name of the town or village is even removed from the vans of the local tradesmen (my own truck has my company's name on it, but the address has been painted over). This deletion of place-names is universal; railway stations, advertising boards, the titles over shops, names of hotels, etc., all have the name of the place erased. The Kingston Hotel shows as "The XXXXXX Hotel," The Newtown Stores as "The XXXXXX Stores." Even destination-boards of country buses are removed.

Usually the local inhabitants will give route directions to a truck-driver (although on asking my way I have often been requested to produce my identity-card); but the private motorist often finds considerable difficulty, sometimes even being purposely misdirected miles out of his way by simple country folk who happened to think he looked foreign or otherwise suspicious.

Before leaving the garage in London, my foreman works out the exact mileage of my trip, and knowing the precise mileage my truck will do to the gallon, taken in conjunction with the total starting load and its dispersal en route, he is able to gauge the exact petrol I shall require. I start with a full tank, and am handed coupons to enable me to buy just the exact amount of petrol necessary to complete my round trip. If for any unforeseen eventuality or miscalculation the coupons prove insufficient, then I have to remain where my tank runs dry until the required additional coupons reach me. Once, on my return journey to London empty, I ran into thick fog for about 120 miles of my route. My tank ran dry 60 miles north of London. I had to stay put for 48 hours before coupons reached my by post in response to my telephone S.O.S. to my foreman.

Like most truck-drivers, the terms of my employment provide that I shall not be required to drive after darkness. But sometimes, to keep to schedule, or if dusk falls when I am half-way between two towns, I will carry on for a few hours in the blackness; but it is quite hopeless to travel at all at night unless the route is very familiar. In the day-time one can always ask directions, but after dark the countryside is completely

deserted. One can be only a few yards away from a cottage, or a wayside inn, but not a glimmer of light shows out to indicate its presence. We are allowed only one head lamp, very much masked so that it does not throw any light more than a very short distance: the distance permitted is altered from time to time, but has never exceeded a very few yards. We are allowed the choice of having our masked head lamp either nearside or offside. Some drivers prefer to have their single masked head lamp on the off-side, throwing light down on the white line that has been painted down the center of all main roads throughout the country, but I chose to have mine on the nearside dimly to show the edge of the road. Nevertheless, the white line is a great help in night driving, although it tends to make drivers keep to the crown of the road, with a correspondingly greater risk of head-on collision. The white line has various white-painted markings indicating approach to crossings, junctions, bends, etc., and many motorists drive with their eyes concentrated on this guide—a rather dangerous tendency in my view, as it means keeping to the crown of the road and failure to perceive oncoming vehicles.

Our side lights must be blacked over except for an aperture not larger than a half-penny piece (the size of a quarter-dollar); even then, the power of the side lamps must be reduced to a minimum. The rear light also must be reduced in size and power. By law, the tips of all front mud-guards must be painted white, and also the tips of the rear guards or large daubs of white painted on the closed tail-board. Pedestrians also are advised to wear something white at night, and it is surprising what a help this is in black-out traveling.

On a really dark night it is impossible to do more than merely crawl along. Only last week I was crawling along in the black-out between Ipswich and Norwich, when I was stopped by a waving red-lamp: the road ahead was blocked by a private car having run head-on into a truck, and another private car had run into the rear of the truck. Owing to the moderate speed at which they had been traveling in the blackness, none of the three vehicles was very badly damaged, and nobody was

(TURN TO PAGE 92, PLEASE)



BUILT BY KENWORTH MOTOR TRUCK CORP.

T *ransportation* L *eans*

HEAVILY ON SKF BEARINGS

If every SKF-equipped vehicle in America were to *stop*, Transportation would slow down to a snail's pace. So garage owners, repair men, and fleet

superintendents join hands in making sure the bearings on their trucks, buses, autos, etc., receive the little attention they require.

4805

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SKF

BALL AND ROLLER BEARINGS

BOMBS & BLACKOUTS

(CONTINUED FROM PAGE 90)

injured. Anyhow, everything has its compensations: I used to hate the dazzling head lamps of approaching cars.

Some drivers contract to drive their trucks on regular routes during the night, and for this they receive very good pay indeed. Personally, I wouldn't drive all night for five times my present wages. My firm have a contract to collect the copies of a London daily newspaper from the printing-works in Central London and rush them to the London railway termini and wholesale newsagents. We call the drivers engaged on this work "the suicide squad." Not only do they have to tear about London at considerable speed during the darkness, but most of the time bombs and splinters of shells are falling along the roads they traverse. I had one night on this newspaper work, but I tell you frankly I funk'd continuing. During my four hours rushing about with the newspapers I (a) was side-swiped by a fire engine on its way to a fire, (b) narrowly escaped a head-on crash into an ambulance rushing casualties to hospital, (c) had my truck almost blown on its side by blast from a nearby high-explosive bomb, (d) had my windscreen pierced by a piece of shell splinter (a few inches more to the right and it would have entered my head), (e) hit a pile of debris that had just previously fallen into the roadway, and (f) finished up with my front wheels sunk in a small bomb crater (when I had traveled the same road twenty minutes earlier there had been no crater). It was four hours of sheer hell in the darkness. It is true that I got for those four hours nearly as much money as I get for my full week's work on long-distance truck-driving, but somebody other than I in future will risk life and limb to insure that Mr. Brown's newspaper is on his breakfast table.

But I was telling you about my present job. The difficulties do not finish with the actual traveling. To arrive at, let me say, Norwich, at 8 p.m. on a winter's evening, is like entering a city of the dead. Not a light anywhere. If one is lucky, a policeman will come forward and investigate you, and he will perhaps be

able to direct you to a garage large enough to accommodate your truck (if it still has goods on it, the truck must be locked in a garage; if empty, it can be left in an open yard). And finding a suitable garage is no easy task, even with a police constable offering suggestions. Presuming a satisfactory garage is located, and there is still someone there to let you drive in; then there is still to be found accommodation for oneself for the night: and whether you secure this or not depends entirely upon the locality you happen to be in. When I am in a "safe district," I must sleep on the floor of the garage, undisturbed by any gunfire or explosion; if in a dangerous area, then very cheaply I can stay at the best hotel, and sleep in a comfortable bed despite the bangs and crashes. The reason is that all available accommodation in what are called "reception areas" is taken by people from "evacuation areas." In reception areas there is never a bed to be had for the traveler, either for love or money: even private households have people billeted on them to the full capacity of their sleeping accommodation. But in the evacuation areas, the best accommodation is to be had at ridiculously low cost.

Meals are another bother. Whilst in theory those catering for travelers, while rationed in their supplies, should be able to provide drivers with some kind of a meal, actually one is often met with the inability of a café to provide any meat, and sometimes it is necessary to visit several eating-houses before getting served with a real meal.

Before I can deliver goods to certain towns in the "restricted regions," I have to get a special permit, as otherwise I would not be allowed by the armed sentries to enter such towns. Actually, however, and particularly latterly, this rule is not so strictly enforced in the case of obviously commercial vehicles. But the order is sternly adhered to in regard to private motorists.

One small but rather irritating matter I was forgetting to mention, and that is the wartime value of any kind of container. Since the war, manufacturers insist on the return to them by their customers of all containers, even the small cardboard cartons in which the smaller packeted lines are packed in the dozen or

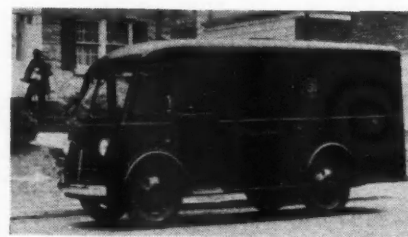
gross, etc. So at each delivery point I now have to ask "Any empties?", and count and inspect the cartons etc., handed out to me, entering the number in a special record-book I have to keep for this purpose. To insure the return of such cartons, suppliers invoice them to their customers at prices several times their cost value, and pass credit for the amount on receiving them back. There is nearly always a wastage of time whilst empties are being looked out for me to bring away, and the counting and checking of all these various kinds of containers is rather irritating, especially when I am offered containers in doubtful condition, or those supplied by some other manufacturer, with an ensuing argument as to whether or not this or that is still in usable condition and acceptable for return. Before the war I used to bring back returned packing cases and crates, but now I arrive back in London with hundreds of small cartons of all shapes and sizes, which need further checking and entering upon arrival.

Well, I think I have now told you more or less what it is like carrying on as a truck-driver in war-time England, and I hope my fellow truck-drivers in America will find my story interesting. I have certainly enjoyed telling them of my experiences.

I was born in 1901, and I expect we 40's will be called up during the next few weeks, so I am hoping soon to be wearing His Majesty's uniform. My ambition is to join the Tank Corps. After 20 years of driving with studious care to avoid hitting pedestrians or vehicles, it will be sheer joy to guide a tank right smack into where the enemy is thickest.

END

(Please resume your reading on p. 34)



United Parcel Service has recently added 100 Dodge one-ton units like this one. Each has a 112-in. wheelbase and features a special body said to be built integral with chassis.



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EXPERTS TANGLE ON GAS & OIL

(CONTINUED FROM PAGE 23)

ding system as to assure that the maximum temperature rise does not exceed 40 deg. F. under extreme operating conditions.

On certain vehicles, the Capital Transit Co. has taken the following corrective measures to overcome vapor lock:

1. Fuel pump reconditioning—checking pressures to assure correct delivery.

2. Trend to adoption of the electric fuel pump owing to the facility with which it could be installed away from engine heat.

3. Checking carburetor float level at 1000-mile intervals.

4. Relocation and shielding of gas lines.

In this connection, Mr. Guernsey offered the opinion that the extremely volatile fuel normally supplied for passenger cars for winter service is neither required nor, in fact, desirable for bus use.

Gum formation—varnishing, lacquering, and other effects—were listed as troublesome problems, credited by Mr. Pardoe as being responsible for deposits in intake manifolds, deposits on valves and stems, varnishing of pistons and rings, clogging of carburetor jets and valves. In his opinion, gum content appears to be greater or at least more troublesome, with the higher straight cracked gasolines which have not been subjected to further refinement.

Varnish or lacquer was defined by Guernsey as being principally a lubricant problem, although fuel also is responsible since a change in fuel has relieved sticking valves and piston rings, in some cases. Valve failures came in for some verbal lashing by Mr. Guernsey. Why is it that engines which behaved all right heretofore have begun to show short exhaust valve life? He surmised that it's due to an unaccountable increase in operating temperature, not wholly chargeable to lean fuel mixtures.

Such increase in temperature reflects itself in the tendency to cause scaling of the valves between the head and the end of the valve guide, although this may be chargeable to the use of lean mixtures. Allied with this is the tendency to coke up intake

manifolds, hot-spots, and the under side of intake valves and adjacent ports. It is claimed that these effects can be corrected by switching to another type of gasoline—one that has been properly treated or inhibited to assure gum stability.

Corrosion of copper-lead bearings, copper parts, etching of wrist pins, and premature wear of timing chains are attributed both to fuels and lubes by Mr. Guernsey. In a form of ailment labelled as "high temperature corrosion," the cause may be found in certain lubricants due to the formation of acidity under abnormal operating conditions. However, in "low temperature" corrosion which occurs in light service where there is a great deal of idling, the cause is probably due to sulfur attack of certain types of fuels. Experience indicates, that in the latter case, the new inhibited oils prevent the trouble, regardless of the type of fuel that is used. Apparently the corrosion effects noted by Mr. Guernsey occur most frequently on new or newly rebuilt engines, aggravated by the presence of fine metallic particles worn off during the break-in period. Operators can control and prevent this type of complaint by following the proper procedures, particularly as to frequency of oil changes, the use of the proper filter cartridges, and regular replacement of filter elements.

On the other hand, Gulf Research Laboratories have been unable to find any connection between the use of leaded fuels and copper-lead bearing failures. Nor have they found any troubles due to sulfur in the fuel. Sulfur is present in all fuels and as a matter of fact, in a recent test, they added a cracked gasoline fraction of high sulfur content to a lube and by so doing, retarded bearing corrosion in engines where corrosion due to oil acids was present.

So far as re-built engines are concerned, Mr. Livingstone cautions fleetmen to realize that when engines are rebuilt the catalytic effect of the metals in the engine again is made active and will react on the lube. Unless the operator takes the same precautions with regard to frequent oil changes as was recommended for the engine when new, he will find himself in trouble due to bearing corrosion even in the first few thousand miles of operation.

Improvements made in the higher

output engines to accommodate the constantly increased duty imposed on road equipment are credited with introducing a variety of complaints. According to C. M. Gray, supt. of shops and equipment, St. Louis Public Service Co., operators now are faced with excessive sludge formation, clogged oil lines, sticky valves and piston rings, varnish, bearing troubles. Noteworthy is the speaker's experience that these troubles can be eliminated or at least controlled by various means at the disposal of the wide-awake operator.

Take sludging for example. With good thermostats and proper cooling temperature control, water sludges have been eliminated. The "hot" type sludge, formed by the break-down of lube under excessive heat and oxidation also is controllable by the installation of crankcase breathers. They experimented with various types of breather set-ups and finally adopted a simple device which consists of a one-inch outlet made in the valve cover and covered with a fine wire screen, connected to an opening in the inlet side of the carburetor air filter. This was found to be adequate in drawing crankcase fumes and gases.

Gray recommends the installation of built-in breathers of the right kind so designed as not to draw too much oil mist out of the case. He also suggests the use of larger oil pumps to assist in oil cooling. In any event, the breather described above, used in combination with the new heavy-duty detergent lubes has served to reduce the severity of their sludging problems.

He also urges engineers to so design the crankcase as to make it possible to assure complete drainage of the lube—to prevent trapping of oil in valve compartments, in oil screen housing, dipper pans, etc., also by locating the drain plug so that all of the oil will drain out.

On the matter of bearing corrosion, Mr. Gray points to the happy experience with the new thin-babbitt bearings which are coming into general use. These have high resistance to corrosion and resistance to fatigue. In this connection, he preaches to the maintenance man the need for extraordinary precautions in fitting bearings so as to eliminate premature wear. For this work it is imperative (TURN TO PAGE 110, PLEASE)



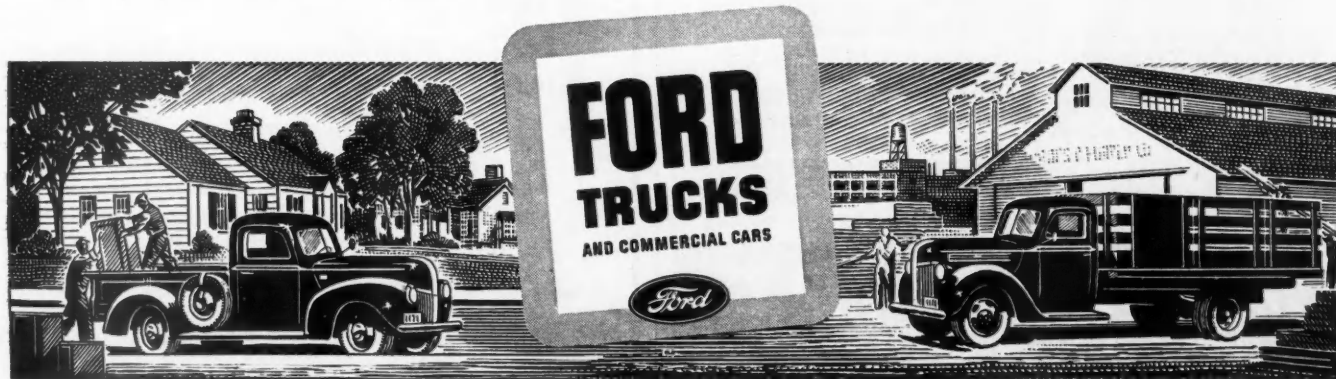
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J. W. Calhoun (left) and one of his 36 trucks used on the Phoenix-El Paso run

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By close attention to lubrication details, Calhoun Brothers, Phoenix, Ariz., trucking company, operating a fleet of thirty-six trucks over the mountainous and desert region between Phoenix and El Paso, Texas, has been able to reduce operating costs 20 per cent, records of the trucking company show.

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From Phoenix to Flagstaff, the fleet, each truck carrying a load of 35,000

pounds, travels from an elevation of 1200 ft. to 7000 ft. Equipped with 24 speeds forward, it requires "double under low" or the last gear to successfully negotiate many of the grades.

"By paying careful attention to our lubrication, the mileage between overhauls has been greatly increased," said J. W. Calhoun, executive of the firm. "In addition, by practically eliminating costly road failures our total operating cost savings amounts to 20 per cent."

LETTER TO THE EDITOR

(CONTINUED FROM PAGE 46)

time. In fact, few electrical devices of this kind show themselves as well as this type of metallic rectifier, basing on 10-year history of make and wide variety of applications.

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I trust that you will accept these comments not in the spirit of criticism, but in an effort on my part to clarify the subject under discussion.

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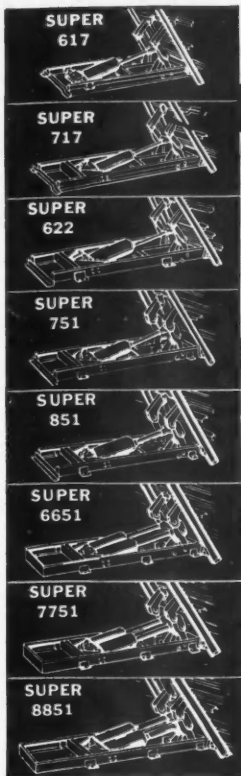
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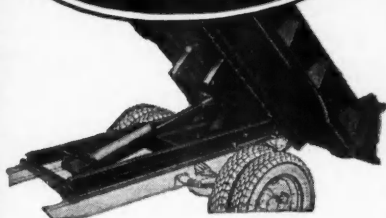
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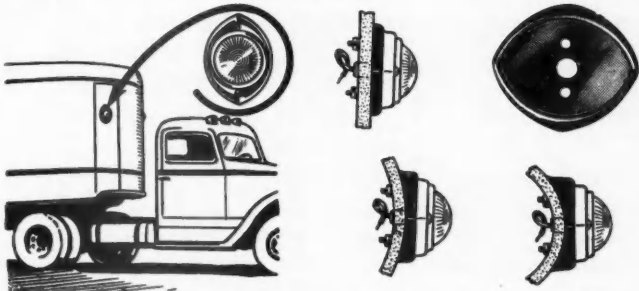
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EXPERTS TANGLE

(CONTINUED FROM PAGE 94)

to use micrometers and torsion wrenches to assure correct fits and pressures. And above all the need for absolute cleanliness.

Governors are highly recommended as a means of prolonging engine life. He finds great promise in a new centrifugal type governor which was placed on the market recently.

Mr. Livingstone, however, claimed that the "mayonnaise" sludge deposits are primarily a function of engine design, maintenance, and operating conditions, and quite independent of the type or quality of the lube. Although the water may be eliminated

by improved ventilation and by keeping the engine warm, in many cases even after water has been eliminated there will be voluminous deposits of finely divided carbon from the combustion chamber. This can be controlled only by decreasing oil consumption, increasing combustion chamber temperature by heavier loading, or both.

Generally speaking, he sheds much light on the seeming inter-relation between the fuel and the lube by pointing to the "migration" or free passage of lube to and from the combustion chamber. It's evident that lube can't pass through the combustion chamber without some decomposition. Consequently, oil thus exposed is less

resistant to oxidation in the crankcase. It is a fact that this migration is responsible for the large amount of solid material which builds up under conditions prone to winter sludge.

As a general rule, the paraffinic oils form sludge and varnish less readily than do the asphaltic base oils but they develop corrosive acidity more readily. Solvent refining decreases the tendency to sludge and varnish but increases the tendency to acidity. On the other hand, the highly refined oils are more susceptible to treatment by additives whereas conventionally refined oils do not respond as well.

Coincident with the adoption of the new heavy-duty lubes, Mr. Gray finds that the filter sock used in his fleet is good for 10,000 miles and in this connection, he points to recommendations made recently by some oil men with respect to oil filters—first, that the cartridge and filter case should be thoroughly drained and cleaned when the oil is changed. This will prevent the formation of the "coffee grounds" sludge found in filters. Second, that many of the new additives used in lubes, particularly the detergents and high oiliness additives, are removed completely by the chemical filters. If the benefits of the additives seem to outweigh those of a filter, oilmen advise against chemical filters when using the heavy-duty oils.

Mr. Mougey summarizes the lube situation in this fashion:

1. That crankcase oil is as much a part of an engine as a piston, a valve, or a crankshaft. For that reason, only the best lube and the most effective maintenance procedure will do.

2. In the early days of automotive development, oil usually was not the limiting factor. But as engine design has improved and as the quality of component parts has been stepped up, the oil industry has had to step into the picture most actively, to make sure that the parts of the engine sup-



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plied by them will be in keeping with the improvements made in the mechanical system of the engine.

3. Finally, that the petroleum industry has done a lot of work with oxidation inhibitors and, more recently, it has learned about detergents, which incorporated in an oil, tend to keep decomposition products of the oil or fuel or both, from sticking to the pistons and other engine parts.

Fleetmen were warned by Mr. Livingstone that the heavy-duty detergent oils were not to be considered as cure-alls. Noting the increasing use of these lubes, he indicated that they are extremely expensive products and should be used only where necessary. In any event, the detergent lubes should be considered as a means of increasing the safety factor of the lubricating system rather than a device for increasing crankcase drain schedules. Incidentally, great care should be employed in the use of detergent oil. For instance, its use in engines which are badly sludged may be quite dangerous since it loosens the sludge and causes it to wash down on the oil screen, usually with disastrous results.

Despite the emphasis upon oxidation of oils, Mr. Livingstone suggested that not every engine presents an oxidation problem. When crankcase temperatures are held to safe limits, uncompounded conventional oils are entirely satisfactory. In fact, any oil, whether inhibited or not, will give satisfactory service so far as freedom from varnish and corrosion is concerned, provided it is not overloaded—that is, if it is not used at too high a crankcase temperature, nor for too long a time.

Additives which inhibit against oxidation are of two classes, according to Mr. Livingstone—(1) oxidation inhibitors, and (2) catalytic poisoners or corrosion inhibitors. In some cases, the two are combined in one additive, although in most cases the best results are obtained only after the lubricating oil has been refined to the point where the additive is most effective. Moreover, while it is true that the net result of additives is to increase the life of the oil during normal drain periods under severe conditions of operation, there is no safeguard against acids coming from outside contamination when

(TURN TO NEXT PAGE, PLEASE)



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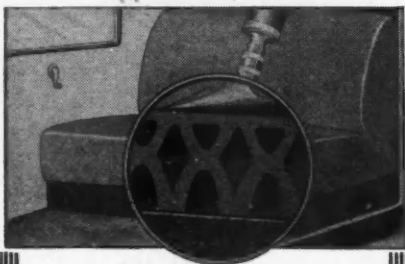
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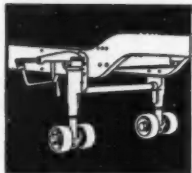
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GASKETS**

(CONTINUED FROM PAGE 111)

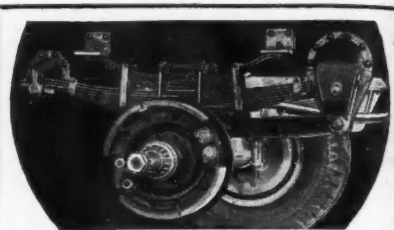
there is a prolonged use of the same charge of the lube.

Speaking for the Esso Laboratories, A. J. Blackwood stressed the fact that the present low cost of petroleum products is due to the combination of mass production and the minimum number of grades marketed. This was emphasized to show why it is necessary for truck and bus operators to adapt their equipment to the regular grades of gasolines supplied for passenger car service. Trucks and buses combined account for only 25 per cent of gasoline consumption and of this trucks account for 21 per cent. Nevertheless, both Robert Cass of the White Motor Co., and Lee Daniels of Twin Coach Co., urged the marketing of a special fuel for heavy-duty equipment even if it would cost more, in the interest of uniformity and improved performance.

Judging by the tenor of the discussion, octane rating of motor fuels still is subject for debate. Mr. Blackwood indicated that the trend to higher octane ratings is the most important contribution made by the refiners. Yet Mr. Daniels and Mr. Cass intimated that octane ratings do not mean the same thing the country over, urged that there be a standard and uniform method of rating which would assure definite properties of the fuel and a definite meaning for octane number regardless of where it may be sold.

A novel slant on vapor lock by Mr. Blackwood intimated there is more to it than just the matter of stalling on the road. Even if the vehicle is not stalled by vapor locking, where the fuel system is designed for handling a large volume of vapor, the operator is paying heavily for inefficiency due to the loss of much, if not most, of this vapor volume. The intimation is that the fuel system which is the most efficient is one that has not only a small vapor handling capacity but is safeguarded against stalling by proper control of underhood temperature.

Although Mr. Daniels decried the demand for leaner mixtures, citing burned valves and other troubles which are chargeable to this practice, Mr. Cass and others were all out for lean mixtures since the objective is to achieve the highest order of fuel



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For running-in new and rebuilt engines use auxiliary lubricants containing "dag" Brand colloidal graphite.

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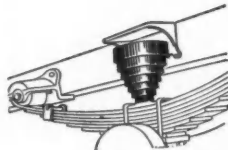
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economy. They feel that it is up to the designers to accommodate engine conditions to the severe punishment of lean mixtures.

Advances made in petroleum products and in motor vehicle design were championed by H. I. Sullivan of Eastern Massachusetts Street Railway Co. What is needed is to have good maintenance procedure for new equipment and a modernization program for the old equipment in keeping with best known methods. In

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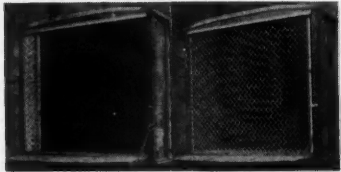
his operation they favor the use of electric fuel pumps and on certain equipment have had much success with the installation of carburetors with the integral governor. Carburetors are given the closest attention. They are checked for calibration every 30,000 miles, completely overhauled and rebuilt every 60,000 miles. Each garage in the system is provided with an exhaust gas analyzer, checking each vehicle every 1500 miles. This gives them a close control of engine conditions and aids in holding fuel economy at the highest possible level.

Along toward the closing hours of the discussion operators demanded some specific help on the matter of bearing corrosion. And they certainly got it. The contribution on this score was easily the most important that has come out of any meeting in recent years.

It all began with some pertinent queries by C. O. Sparhawk of the United Electric Railways. Why is it, he asked, that the old ACF buses, underpowered, overloaded and overheated as they were, could roll up upwards of 500,000 miles without even a replacement of the copper lead bearings of that day? Why is it that a fleet of 1937 buses with copper-lead bearings went some 220,000 miles without trouble whereas the same make and type of equipment purchased in 1939 and used in the same service under identically the same conditions had bearing failures within the first 35,000 miles of operation? He hasn't yet had the answer but believes that part of the trouble stems from the fact that heavy duty equipment must be operated on the fuels and lubes developed for the new crop of passenger cars. He feels that fleetmen should have special fuels and lubes marketed specifically for their use.

George Round admitted that they have been faced with the same problems, intimated that the troubles are
(TURN TO PAGE 117, PLEASE)

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THAT TOUGH RUN'S
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INSTALL Wagner Air Brakes—"The air brake with the rotary compressor" on all of your vehicles and you will not only make the toughest run a "cinch," but will also save money all along the line.

Successful operators have been quick to realize this, and many of the leading fleet operators and truck owners who have already equipped their rolling stock with Wagner Air Brakes are reporting decreased truck maintenance.

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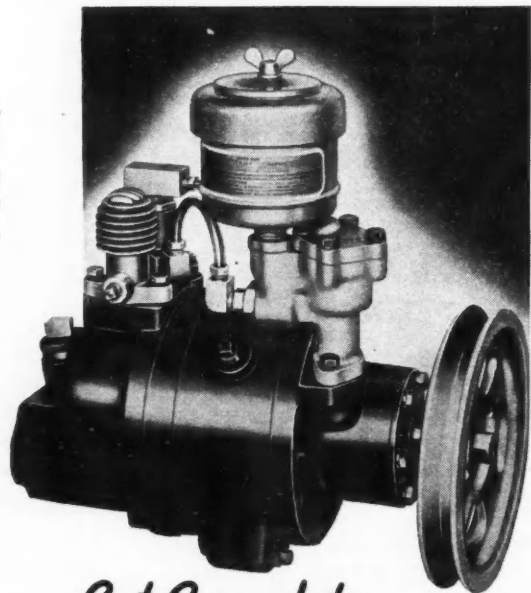
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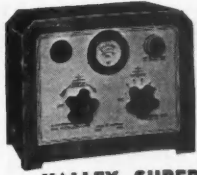
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FORT WAYNE, INDIANA

EXPERTS TANGLE

(CONTINUED FROM PAGE 113)

even more pronounced in motor truck operations. What the real answer may be oilmen frankly don't know. But they can point to some major contributing causes. For instance, crankcase temperature has a direct bearing on the situation since the speed of oxidation of any lube, regardless of its quality or of its cost, is intensified by any increase in temperature. Another source of trouble comes from the tendency to use the oil too long. In fact, when it comes to a new engine or a freshly rebuilt engine, Round as well as other experts finds its imperative to have the first charge of lube changed early.

Bearing failures are not all due to corrosion nor should they be attributed always to the lube, as is the first impulse when trouble is experienced. For instance, Aug pointed out that bearing corrosion is non-existent in Mack diesel engines. Why? Dr. Haskell pointed to the fact that aircraft engines have none of these failures. So far as the diesel is concerned, he credits it with starting the work on compounded lubes and intimates that the proper use of the new and more expensive lubes will help to get the fleetmen out of the woods.

Rounds showed that crankcase corrosion is a product of four variables—time, temperature, area of metal, catalytic action. Some of the bearing failures clearly are due to improper installation in replacement. Evidently, not all maintenance men are familiar with the proper procedure for installing copper-lead bearings, do not use the correct clearances, have not always made the installation with sufficient precision. Failures arising from these shortcomings often show up in what is diagnosed as bearing fatigue. This was also confirmed by Squier.

Abbott summarized his views on the subject by recommending the use of inhibited oils for the break-in period in severe operations, urged frequent oil changes thereafter. White motor has found that sulfur is responsible for the "darkening" of copper-lead bearings and that ¼ of one per cent of sulfur is sufficient to cause corrosion.

That heavy duty lubes are no cure-

(TURN TO NEXT PAGE, PLEASE)

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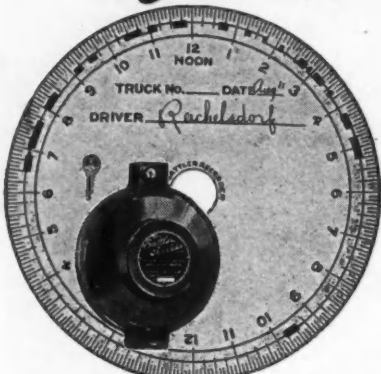
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(CONTINUED FROM PAGE 117)

all was emphasized by Squier. With such lubes frequent draining is recommended since the addition agents are consumed and their protection nullified as crankcase mileage is piled up. His experience indicates that the use of detergent lubes is beneficial in removing the ill effects of lead in the crankcase. On the matter of crankcase ventilation he prefers the "ejector" type ventilator, even though its use demands frequent over-hauling and cleaning of the plumbing.

Perhaps the most valuable contribution on the subject of bearing failures was presented by Dr. J. C. Geniesse of Atlantic Refining, and Dr. H. R. Wolf of General Motors Research, both men supporting their argument with pictures of specific bearing failures. Several of Dr. Geniesse's pictures are reproduced on pages 22 and 23.

Wolf stated emphatically that the copper-lead bearing is perfectly acceptable for heavy duty service. Geniesse made a plea to fleetmen to appreciate that not all bearing failures may be attributed to the lube.

Generally speaking, bearing failures are of three distinct types—

1. Lead corrosion.
2. Copper corrosion.
3. Mechanical fatigue.

According to Geniesse, lead corrosion is due principally to either high temperature or poor oil since this form of failure is caused by oil acid corrosion. He indicated, nevertheless, that all oils will give this trouble if crankcase temperatures go above a certain limiting value. Copper loss or corrosion is experienced primarily in buses, very seldom in trucks, and practically never in diesels, although diesels do have lead corrosion. This is a low temperature effect, caused by sulfur attack probably from products

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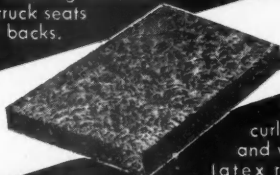
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of combustion. It is an entirely new problem. Adequate crankcase ventilation is one of the cures.

Bearing fatigue is experienced mostly on motor trucks, shows up in the form of pieces of the bearing metal actually breaking away. It is a product of poor bearing structure, bad maintenance procedure in bearing installation, aggravated by excessive temperature and high loading.

General Motors Research finds that lead corrosion may be due to three causes—

- a. Oil acid attack.
- b. Acceleration of acidity by metallic soaps.
- c. Direct attack by metallic soaps, appearing in the region of high pressure area.

Copper corrosion, on the other hand, leaves the lead intact and is due to entirely different conditions which may be outlined as follows:

- a. Attack of oil acids of low molecular weight.
- b. Crankcase corrosion products.
- c. Corrosion products from outside sources.

For example, in copper corrosion there is frequently a surface layer of some strange material which bears no relation to the composition of the bearing itself. Wolf believes that this surface layer is composed of extraneous material coming from an improperly maintained oil filter. A sample analysis showed that the surface layer contained around 12 per cent of sulfur. Further checking disclosed that the filter sludge impregnated in the element contained about 32 per cent free sulfur which was being circulated and fed into the lubricating system of the engine. It should be noted that sulfur has seemingly paradoxical properties. Actually sulfur is an excellent corrosion inhibitor—provided it is in a combined form, that is, firmly attached to gasoline or oil molecules. But free sulfur, the kind that comes out of combination due to cracking in the combustion chamber or from other sources is the most vicious kind of corrosion product.

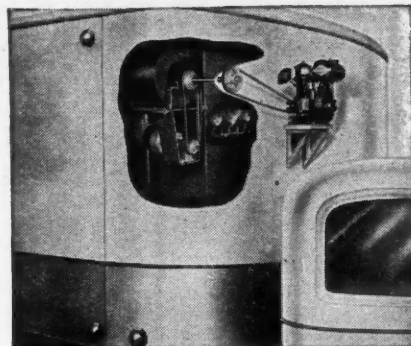
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(Please resume your reading on p. 24)

QUIZ ANSWERS

(See Page 18)

1. a; 2. b; 3. b; 4. b; 5. b; 6. c; 7. c; 8. a; 9. a; 10. b (One out of every four trucks is owned by farmers).



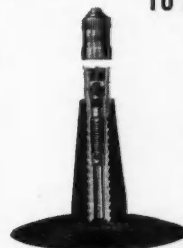
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